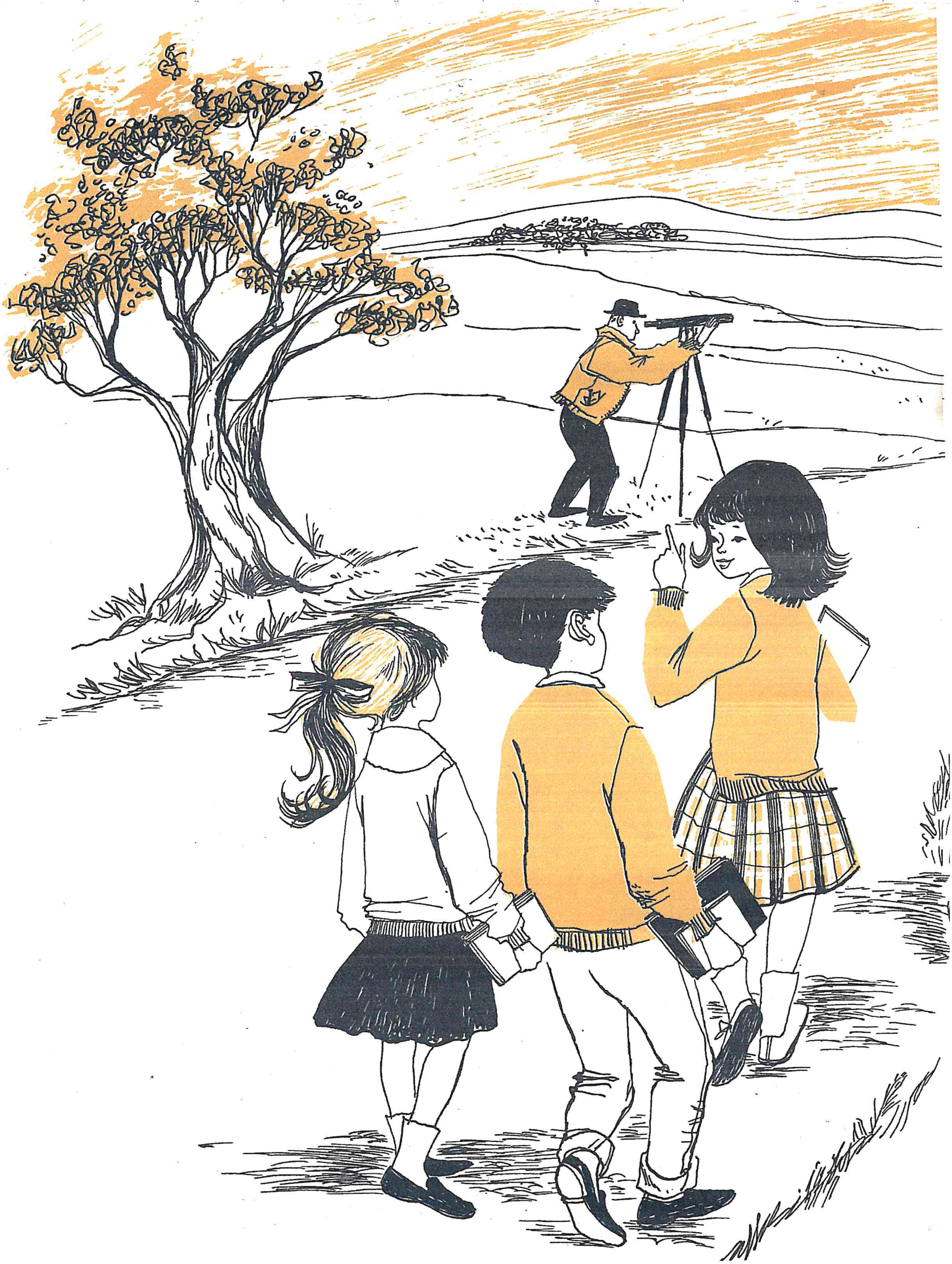
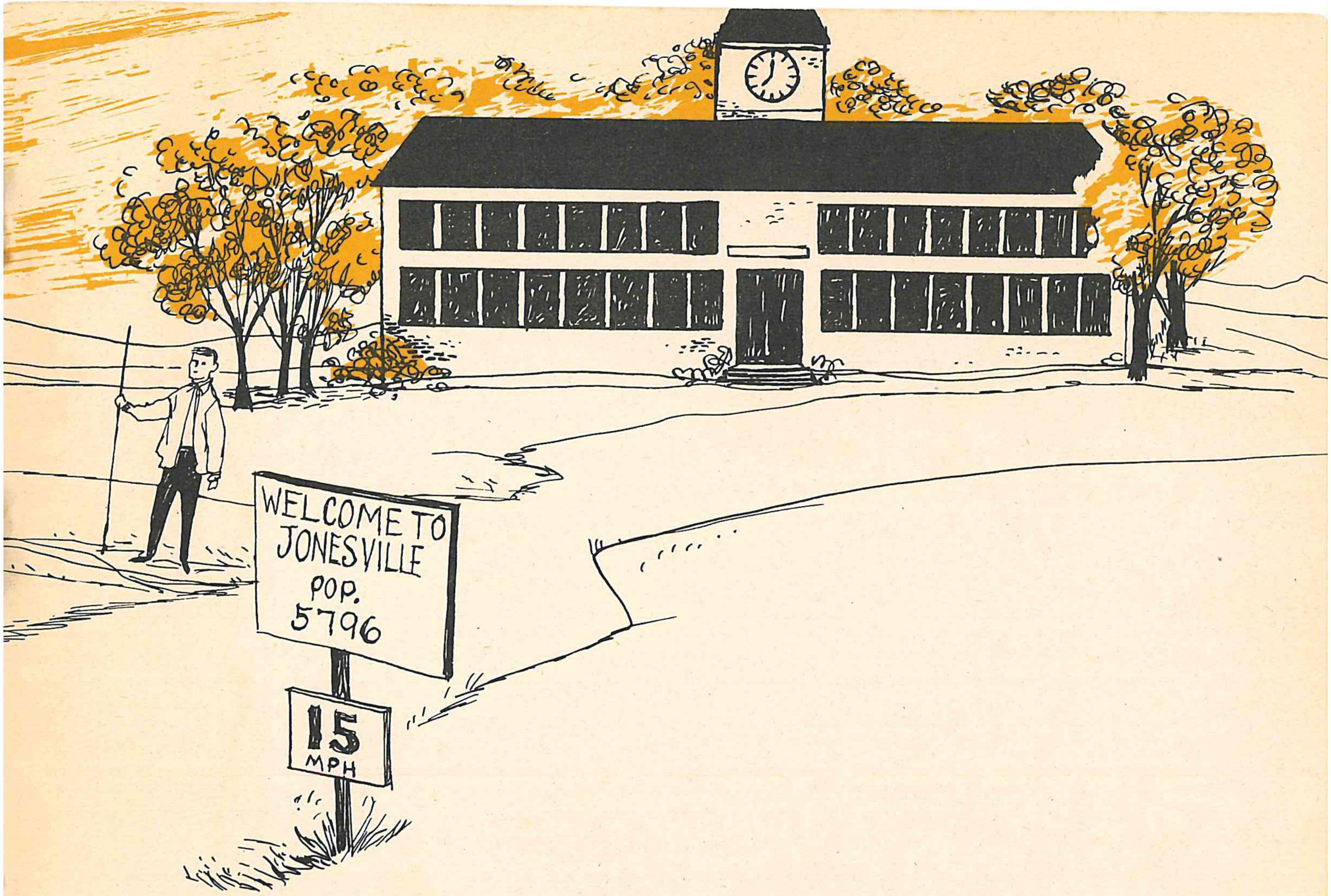
THE NEW ARITHMETIC

4 ÷ 2 = 2
6 ÷ 2 = 3
3 × 6 = 18
3 × 7 = 21
TRUCK
AUTOMOBILE
100 110 120
−258
810 −630
321 −118
685 −458
973 −544
581 +428
288 +497
293 +178
847 +698
463 +237
833 +747
468 +513
440 +189
NAILS
PAINT
I 1
II 2
III 3
IV 4
V 5
VI 6
VII 7
VIII 8
IX 9
X 10
XI
XII
XIII
XIV
XV
cube
cone
1 > 0 2 > 1 3 > 2 4 > 3 5 > 4
10 < 11 9 < 10 8 < 9 7 < 8
472 is the same as ___ hundreds, ___ tens, and ___ ones
690 is the same as ___ hundreds, ___ tens, and ___ ones
305 is the same as ___ hundreds, ___ tens, and ___

McCORMICK-MATHERS





THE NEW ARITHMETIC

3

Rose and Ruth Weber
assisted by
Flora B. Miller and Edith H. Price

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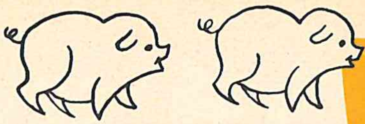
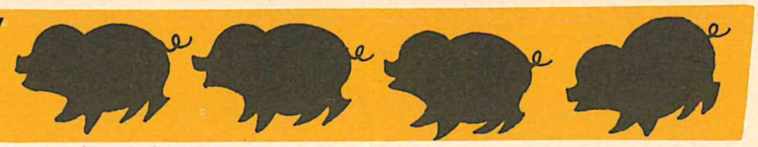
Illustrated by Carol Wilde



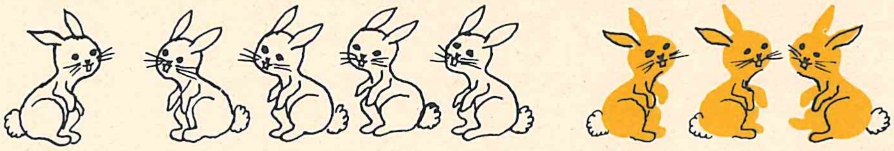


Lesson 1 — NUMBER FACTS

1. Sam and Dick saw many animals at the fair. Dick saw 4 black pigs and 2 white pigs. How many pigs did he see altogether? ___
The sign + is read **plus.** It shows addition.

Work Space

4	2
+2	+4

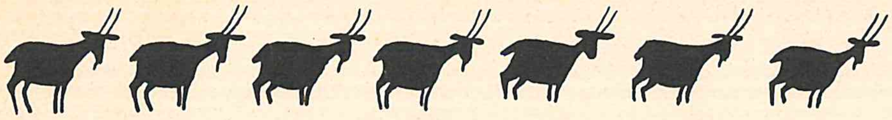


UNIT 1

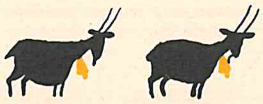
2. Sam saw 8 rabbits in one pen. 5 of the rabbits were white and the others were brown. How many rabbits were brown? ___
The sign − is read **minus.** It shows subtraction.

8 rabbits
−5 rabbits
rabbits

3. Mary saw 4 sheep in one pen and 5 sheep in another pen. How many sheep did Mary see? ___



4. Dan saw 9 goats. 2 of the goats had bells at their necks. How many had not? ___



5. ***Add:***

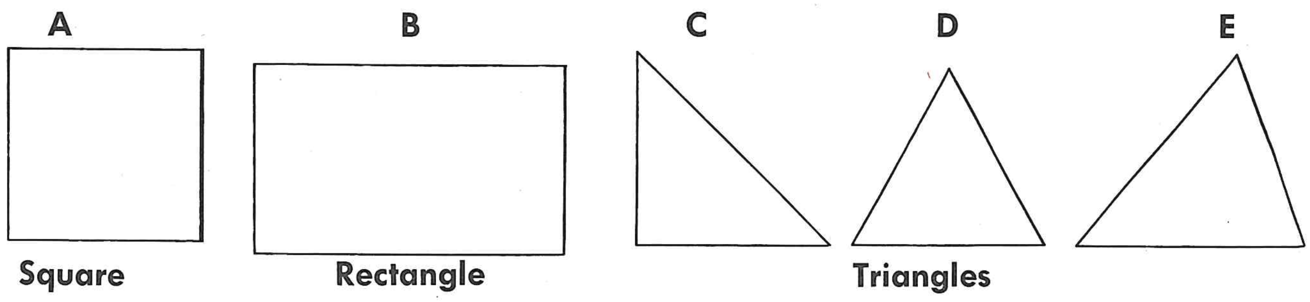
a	b	c	d	e	f	g	h	i	j	k
2	3	4	7	4	7	5	3	5	5	2
3	4	6	3	4	2	3	7	4	5	8

6. ***Subtract:***

8	10	7	10	9	8	10	9	10	7	10
2	6	3	7	5	6	3	6	8	5	9

TOP SCORE: 27 MY SCORE: ______

Lesson 2 — SPECIAL SHAPES



1. Place a strip of paper against one side of the square. Make two marks on the edge of the paper to show how long the side is. Use these marks to measure the other sides. Are all the sides the same length? ________

2. Do the same for the rectangle. Are all the sides the same length? ________

3. Measure the triangles. Does one triangle have all sides the same length? Write its letter: ___

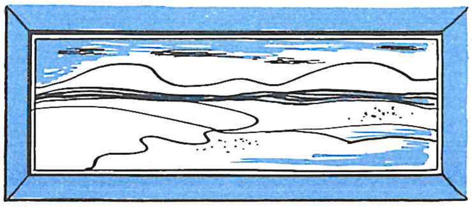
4. Does one triangle have only two sides the same length? Write its letter: ___

5. Does one triangle have no sides the same length? Write its letter: ___

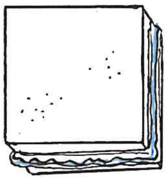
6. Which of the shapes above have square corners? _______

7. How many of them have square corners? _______

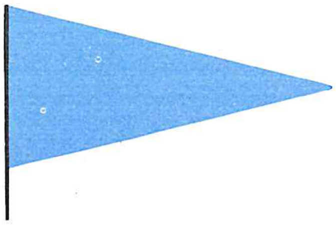
8. Find a shape above that is like each of the things below. Write its letter in the space:



_____



_____

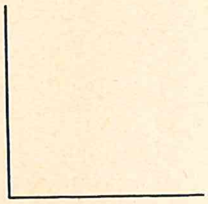


_____

TOP SCORE: 10 MY SCORE: _____

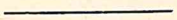
Lesson 3 — *SHAPES AND LINES*

F



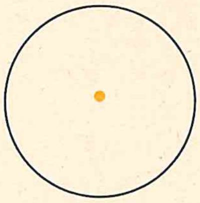
Square Corner

G



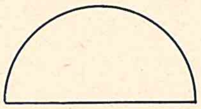
Straight Line

H



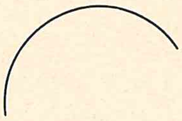
Circle

I



Semicircle

J



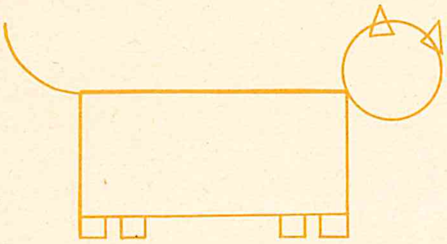
Curved Line

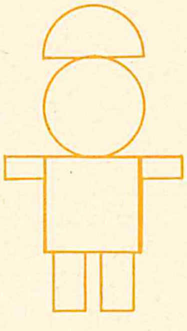
1. Place the edge of a strip of paper across the circle on the center dot of the circle. Make two marks on the strip to measure the distance across the circle. Measure the distance in different directions. Make sure the edge of the paper is always on the center dot. Is the distance across the circle always the same in every direction? ________

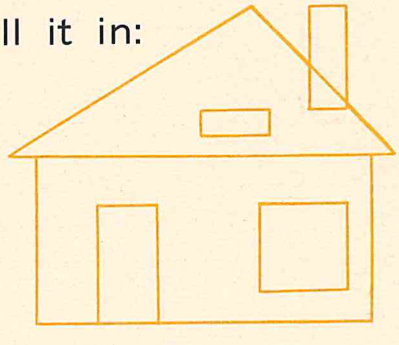
2. Find the shapes above that have straight lines. Write their letters: ________

3. Find the shapes above that have curved lines. Write their letters: ________

4. Study the picture below.
   a. Count the triangles: ________ b. Put an X in the rectangles. c. Write the letter S in all the squares. d. Draw faces in the circles using the shapes on this page. e. Do you see a semicircle? If you find one fill it in:

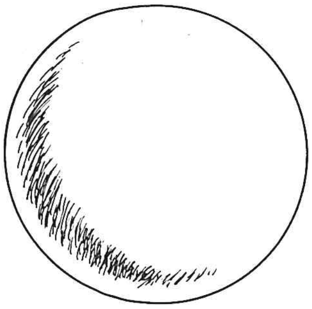


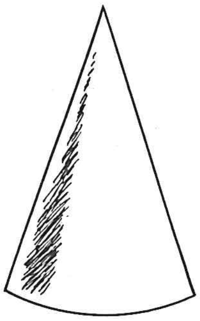


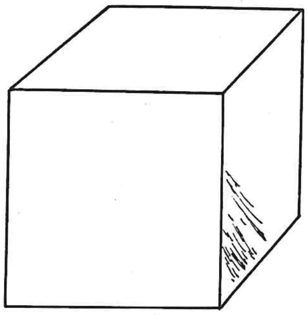


TOP SCORE: 7 MY SCORE: ________

Lesson 4 — OTHER SHAPES


Sphere

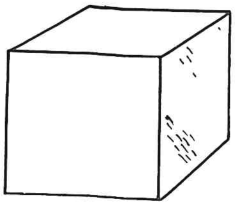

Cone


Cube

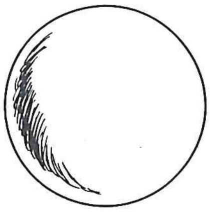
1 UNIT

1. *Write the name of each of these figures:*

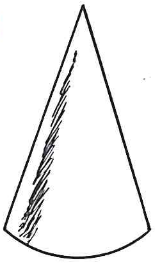
a



b



c



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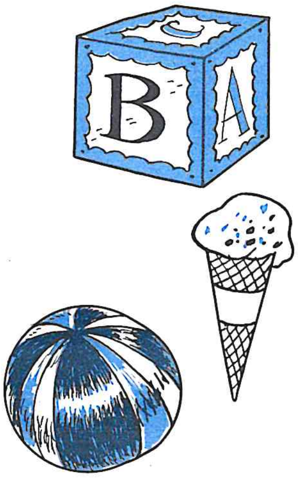
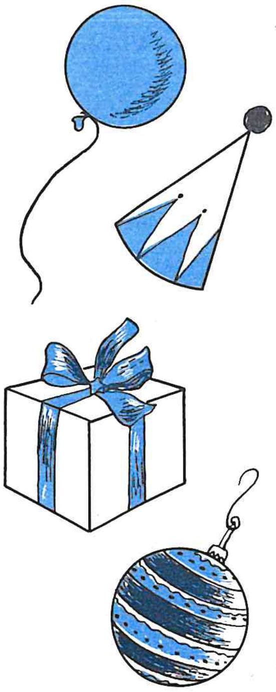
2. *Draw a line from each picture to the right word:*



cone

cube

sphere



sphere

cone

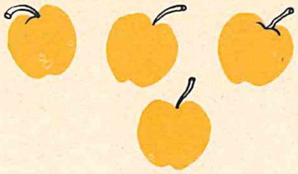
cube

3. *Name something that is shaped like:*

a cone ____________ a sphere ____________ a cube ____________

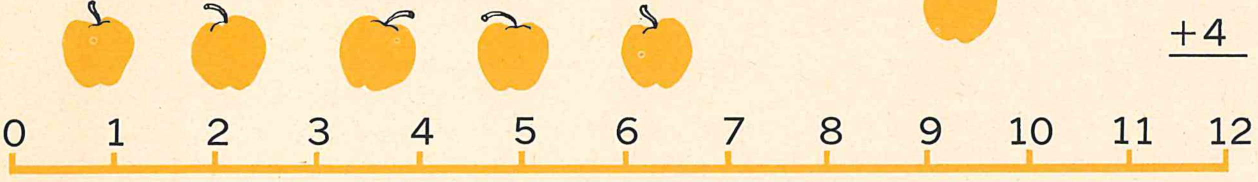
TOP SCORE: 12 MY SCORE: ______

Lesson 5 — USING NUMBER LINES



1. Use the number line to add: 5 + 4 = ___

5
+4

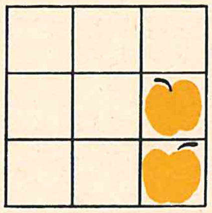

0
1
2
3
4
5
6
7
8
9
10
11
12

2. Add. Use the number line to see if your answers are correct:

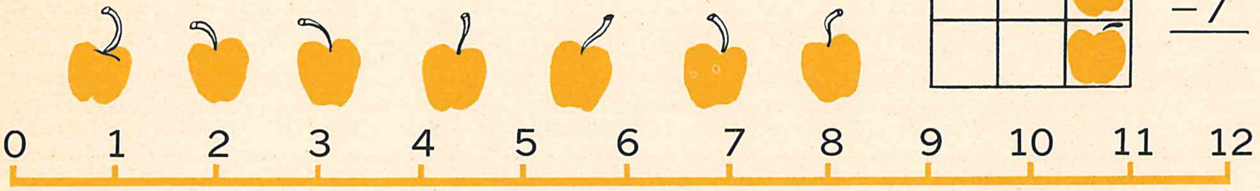
a	b	c	d	e	f	g	h	i	j	k
9	2	2	6	3	6	1	3	8	3	1
1	6	7	4	4	3	8	5	2	6	9

0
1
2
3
4
5
6
7
8
9
10
11
12

3. Use the number line to subtract: 9 − 7 = ___



9
−7


0
1
2
3
4
5
6
7
8
9
10
11
12

4. Subtract. Use the number line to see if your answers are correct:

a	b	c	d	e	f	g	h	i	j	k
8	10	8	10	8	7	7	9	10	5	9
3	4	7	2	4	4	6	3	5	3	8

0
1
2
3
4
5
6
7
8
9
10
11
12

5. Do what the signs tell you to do:

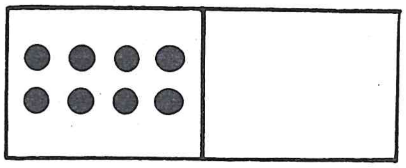
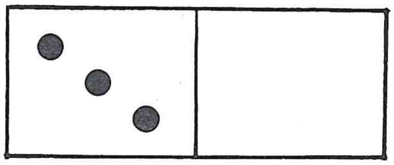
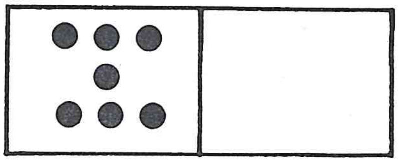
5	1	7	8	7	4	6	9	1	9	10
+2	+6	+1	−1	−2	+3	+1	−4	+7	−1	−1

TOP SCORE: 39 MY SCORE: ______

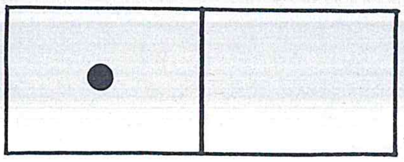
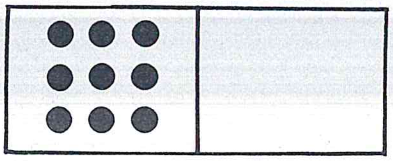
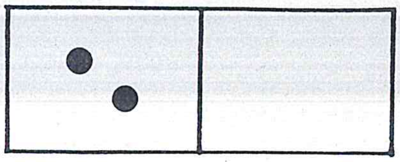
Lesson 6 — WHAT MAKES TEN?

In each rectangle draw enough more dots to make 10. Put in the missing numbers:

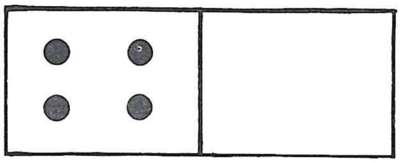
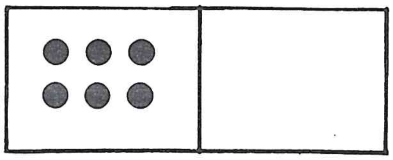
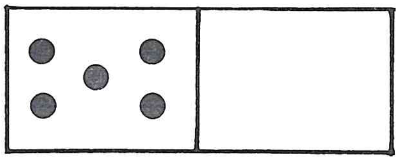
a b c

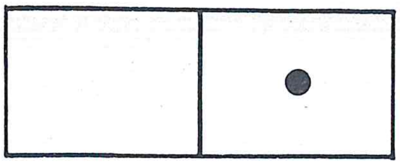
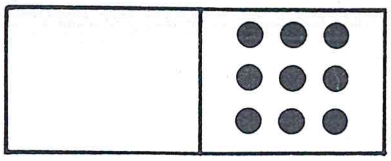
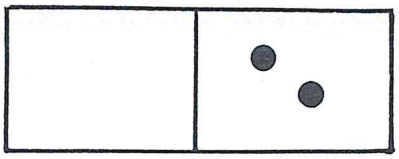
1. 8 + ______ = 10   3 + ______ = 10   7 + ______ = 10

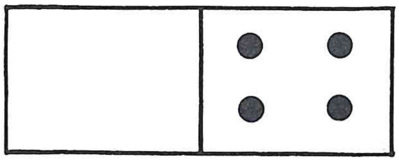
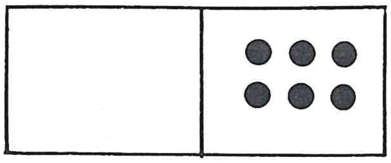
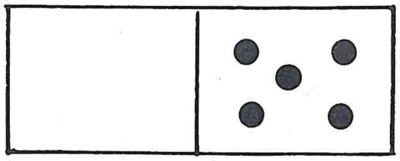
2. 1 + ______ = 10   9 + ______ = 10   2 + ______ = 10

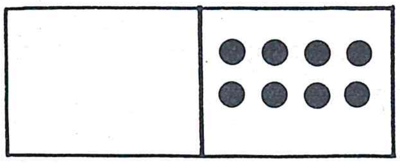
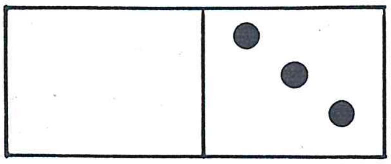
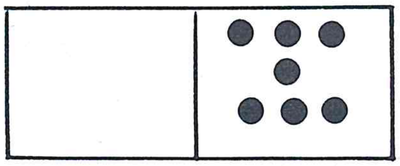
3. 4 + ______ = 10   6 + ______ = 10   5 + ______ = 10

4. ______ + 1 = 10   ______ + 9 = 10   ______ + 2 = 10

5. ______ + 4 = 10   ______ + 6 = 10   ______ + 5 = 10

6. ______ + 8 = 10   ______ + 3 = 10   ______ + 7 = 10

TOP SCORE: 36   MY SCORE: ______

Lesson 7 — COUNTING BY TENS AND FIVES

1. **Count by tens:**

10 20 30 40 50 60 70 80 90 100

2. **Write by 10's to 100:**

____

3. **Count by fives:**

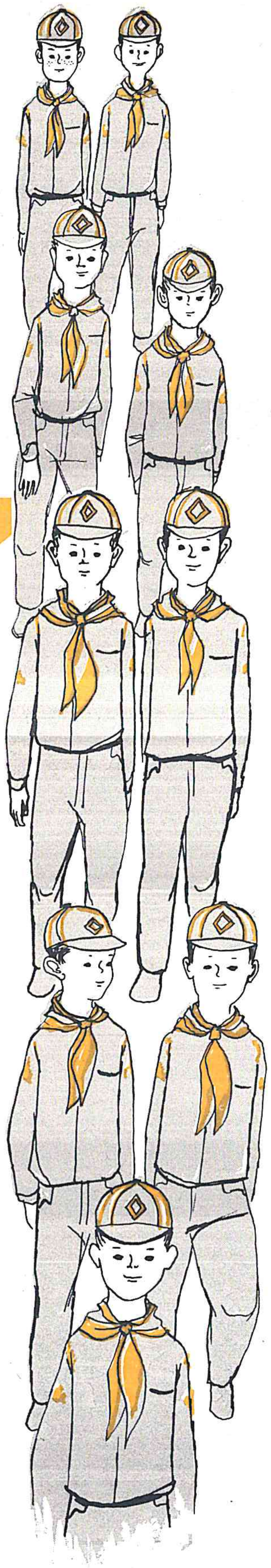
5 10 15 20 25 30 35 40 45 50
55 60 65 70 75 80 85 90 95 100

4. **Write by 5's to 100:**

____

____

TOP SCORE: 30 MY SCORE: ______



Lesson 8 — COUNTING BY TWOS

The Cub Scouts are marching in pairs. Count them as they pass. The easy way to count them is by 2's.

Say the colored numbers as you count:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

If you count the scout leader too, you can still count by 2's.

Begin with 1 and say the black numbers above.

1. Write by 2's to 100. Begin with 2: ____________________

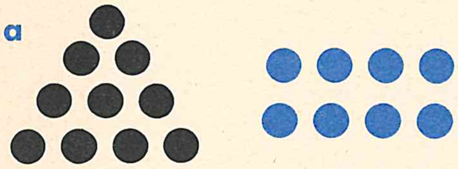
2. Write by 2's to 99. Begin with 1: ____________________

TOP SCORE: 100 MY SCORE: ______

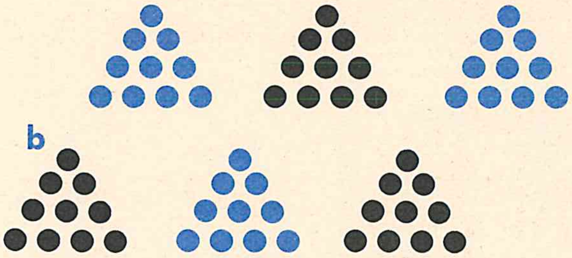
Lesson 9 — TWO-PLACE NUMBERS

Write the numbers that tell how many:

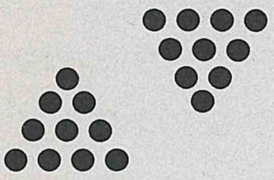
a

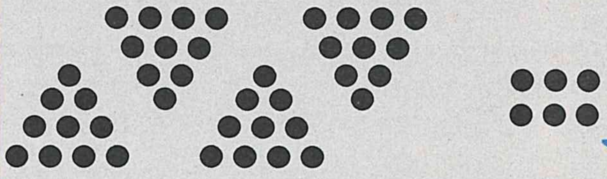


b



1. ___ tens and ___ ones are ____. ___ tens and ___ ones are ____.

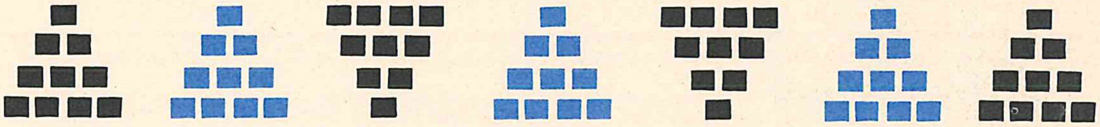




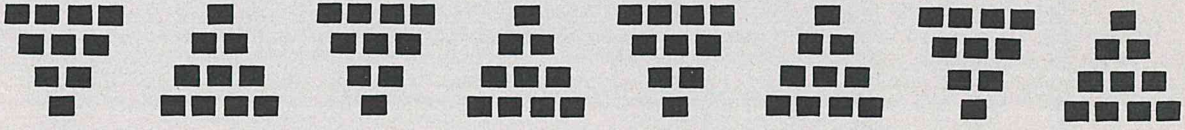
2. ___ tens and ___ ones are ____. ___ tens and ___ ones are ____.

Draw enough more blocks to make as many as the numbers say:

3. 75 blocks



4. 83 blocks



Write the numbers that tell how many tens and ones:

a | b

5. 17 is ___ ten and ___ ones. 39 is ___ tens and ___ ones.
6. 50 is ___ tens and ___ ones. 72 is ___ tens and ___ ones.
7. 43 is ___ tens and ___ ones. 98 is ___ tens and ___ ones.

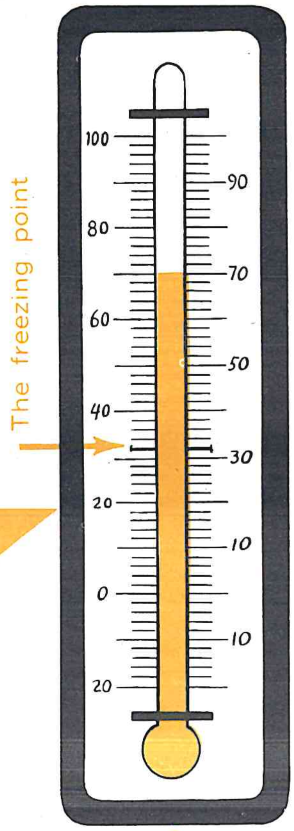
Write the numbers:

a | b

8. 6 tens and 4 ones are ____. 4 tens and 3 ones are ____.
9. 8 tens and 1 one are ____. 3 tens and 5 ones are ____.
10. 7 tens and 0 ones are ____. 2 tens and 0 ones are ____.

TOP SCORE: 18 MY SCORE: ____

Lesson 10 — READING THERMOMETERS



A

A thermometer is used to measure temperature. The glass in the middle of the thermometer holds a liquid. As the temperature gets warmer, the liquid goes higher. As the temperature gets cooler, the liquid goes lower.

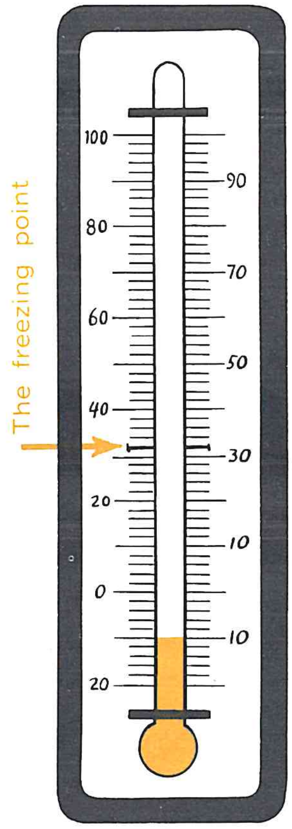
1. Temperature is measured in degrees. The number at the mark that is level with the top of the liquid tells the degrees of temperature. How many degrees does the top thermometer **(A)** show? _____

2. A short way to write 70 degrees is 70°. Write these temperatures the short way:

60 degrees _____ 0 degrees _____ 74 degrees _____

Not all degree numbers are shown on most thermometers. The lines between the numbers on the thermometer are two-degree marks. The marks from 50 to 60 show the following degrees: 50°, 52°, 54°, 56°, 58°, 60°.

3. When the temperature changes from 54° above zero to 62° above zero, how many degrees does it change? _____ Is it warmer or cooler after the change? _______________



B

4. Tell the temperature shown on thermometer **B**: _____ How can you tell which numbers are above zero and which are below zero? Which thermometer shows a temperature above zero, **A** or **B**? _____

5. Find the mark that shows the freezing point. How many degrees does this show? _____

TOP SCORE: 9 MY SCORE: _____

Lesson 11 — TEMPERATURE

1. 20° above zero is cold. 10° above zero is colder, and 10° below zero is much colder. How much colder is 10° below zero than 10° above zero? Count the degree marks by 2's between the temperature above zero and the temperature below zero. ______

2. Find the mark that shows zero degrees. How many degrees above the zero mark is the freezing point? ______

3. The freezing point is rightly called 32° above zero. Is this warmer or cooler than 32° below zero? ________________

4. When the temperature changes from 32° above zero to 28° above zero, is it warmer or cooler?

____

How many degrees does it change? ______

5. When the temperature changes from 10° below zero to 20° below zero, is it warmer or cooler?

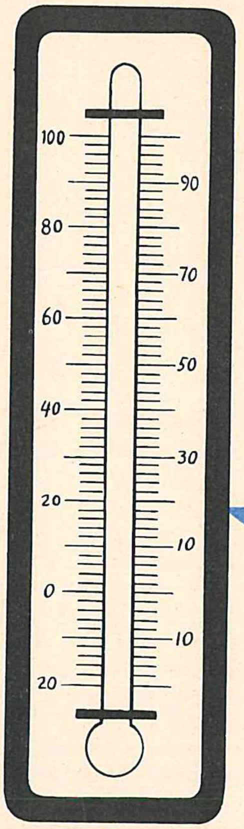
____

How many degrees does it change? ______

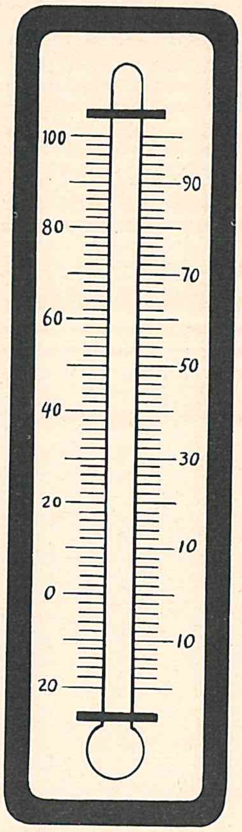
6. On the thermometers **C** and **D** shade the glass columns to show these temperatures: **C** 54° above zero; **D** 14° below zero.

7. While 10° above zero is very cold, it is warmer than 10° below zero. How many degrees warmer is it? ______

8. 10° above zero is how many degrees below freezing? ______

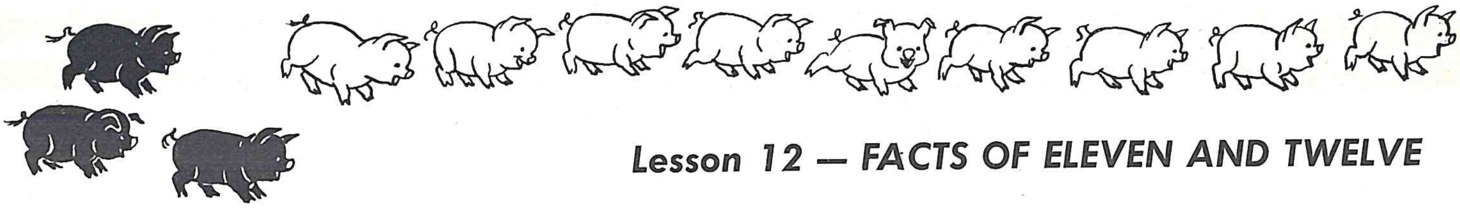


C



D

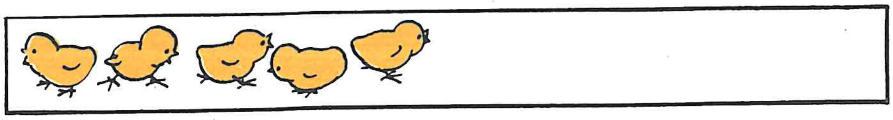
TOP SCORE: 11 MY SCORE: ______

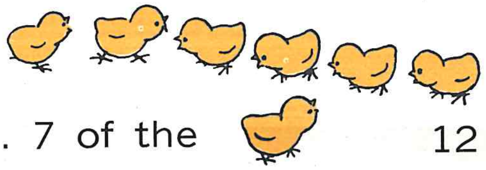


Lesson 12 — FACTS OF ELEVEN AND TWELVE

1. In the barnyard there were 9 white pigs and 3 black pigs. How many pigs were in the barnyard? ___

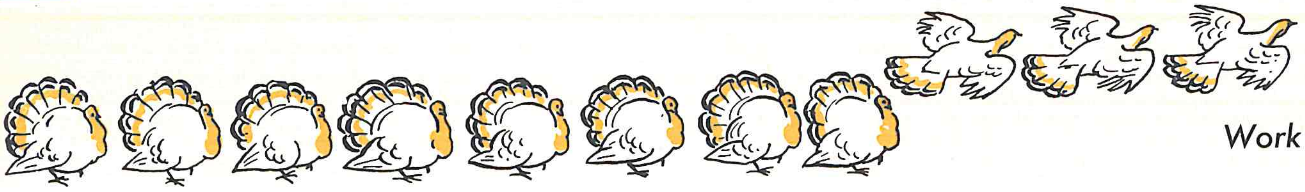
9	3
+3	+9





2. The children put 12 chicks in a pen. 7 of the chicks got out. How many were left? ___

12
7



Work Space

3. Jane fed 11 turkeys. Soon 3 turkeys flew over the fence. How many turkeys were left? ___

4. ***Add. Use the number line to check your answers:***

0 1 2 3 4 5 6 7 8 9 10 11 12

a	b	c	d	e	f	g	h	i	j	k	l
9	4	5	3	2	7	6	5	8	4	6	7
2	8	7	8	9	4	6	6	3	5	2	5

5. ***Subtract. Use the number line to check your answers:***

a	b	c	d	e	f	g	h	i	j	k
12	11	12	11	12	11	12	12	11	12	11
8	2	9	7	5	4	6	4	6	7	9

6. ***Do what the signs tell you to do:***

8	11	12	6	12	7	11	3	6	8	8
+4	−8	−5	+6	−3	+5	−5	+6	+5	−2	−7

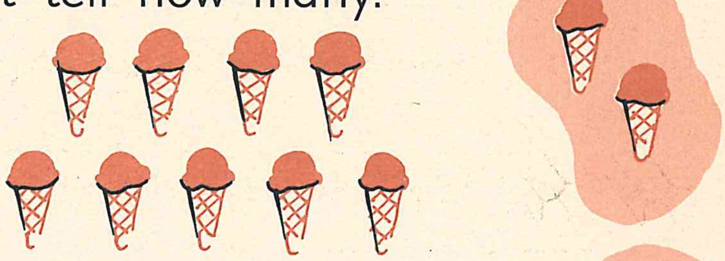
TOP SCORE: 38 MY SCORE: ______

Since the number facts of 11 should by now be known to most students, the four related statements for each partitioning are shown together.

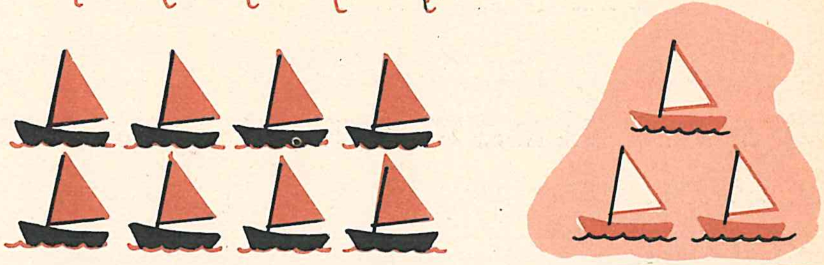
All About Eleven

Write the numbers that tell how many:

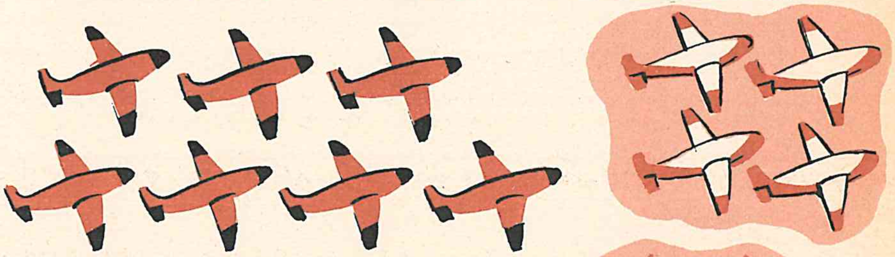
9	2	11	11
+2	+9	−9	−2
11	11	2	9



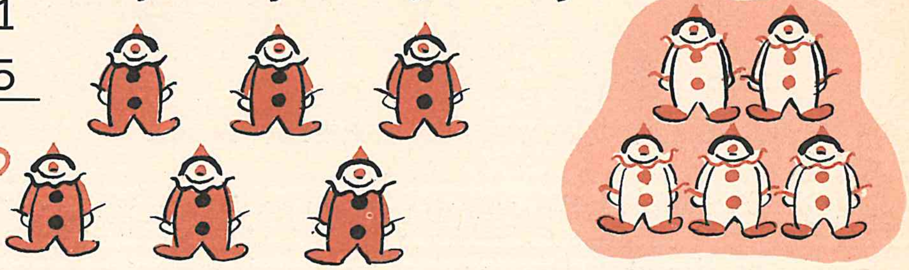
8	3	11	11
+3	+8	−8	−3
11	11	3	8



7	4	11	11
+4	+7	−7	−4
11	11	4	7



6	5	11	11
+5	+6	−6	−5
11	11	5	6



Subtract:

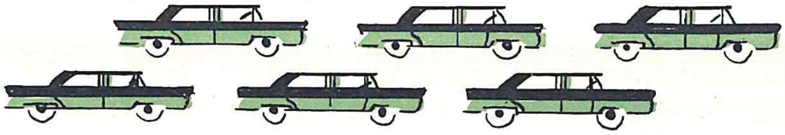
11	11	11	11	10	11	11	11	11
6	2	4	7	3	8	3	9	5
5	9	7	4	7	3	8	2	6

Add:

6	8	2	1	4	5	7	4	5
5	2	9	8	6	3	4	5	5
11	10	11	9	10	8	11	9	10

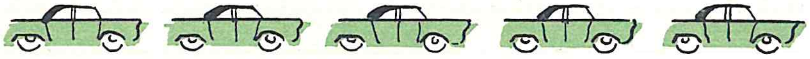
2	5	3	3	9	2	8	4	9
7	6	7	8	1	6	3	7	2
9	11	10	11	10	8	11	11	11

Help pupils to select the appropriate operation for each story.



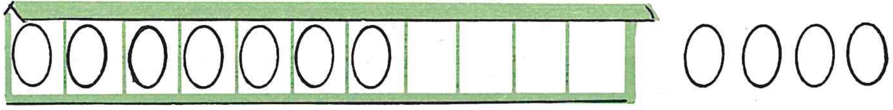
Number Stories

Sam had 6 cars and Bill had 5 cars. How many cars did the boys have together?



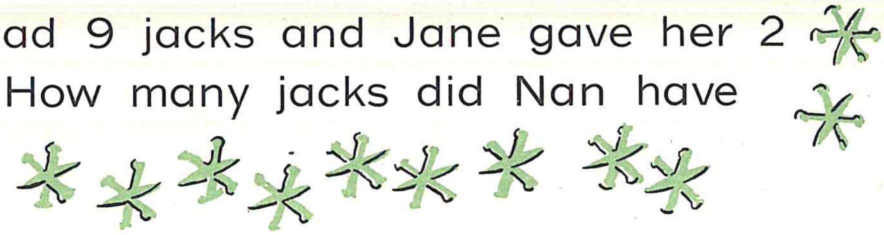
$$\begin{array}{r}6\\+5\\\hline 11\end{array}$$

Jane had 11 eggs in a box. She took 4 out. How many eggs were left in the box?



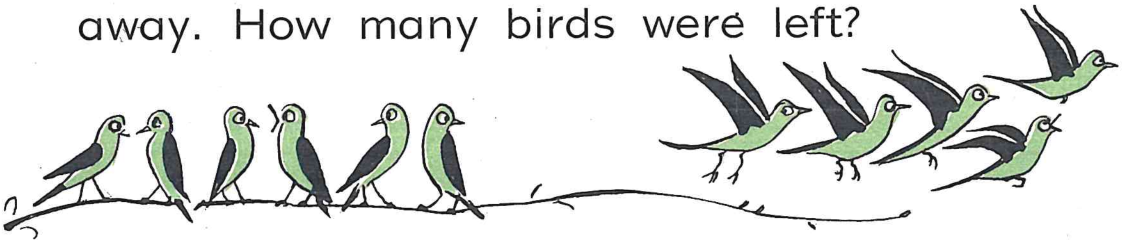
$$\begin{array}{r}11\\-4\\\hline 7\end{array}$$

Nan had 9 jacks and Jane gave her 2 more. How many jacks did Nan have then?



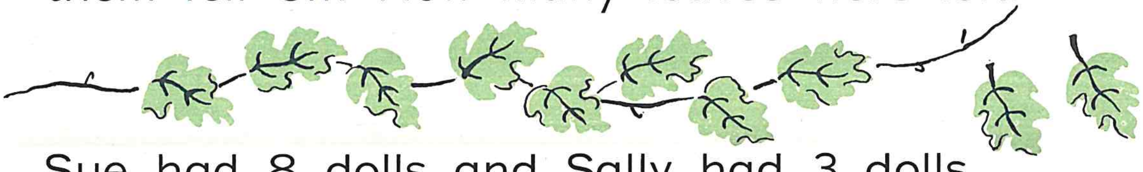
$$\begin{array}{r}9\\+2\\\hline 11\end{array}$$

Bob saw 11 pretty birds. 5 of them flew away. How many birds were left?



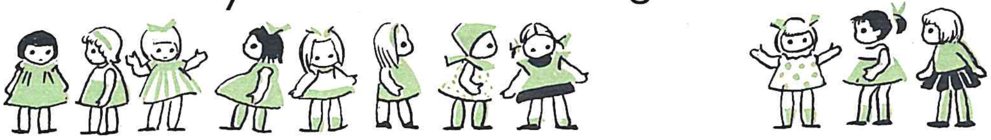
$$\begin{array}{r}11\\-5\\\hline 6\end{array}$$

Sue had 10 oak leaves on a branch. 2 of them fell off. How many leaves were left?



$$\begin{array}{r}10\\-2\\\hline 8\end{array}$$

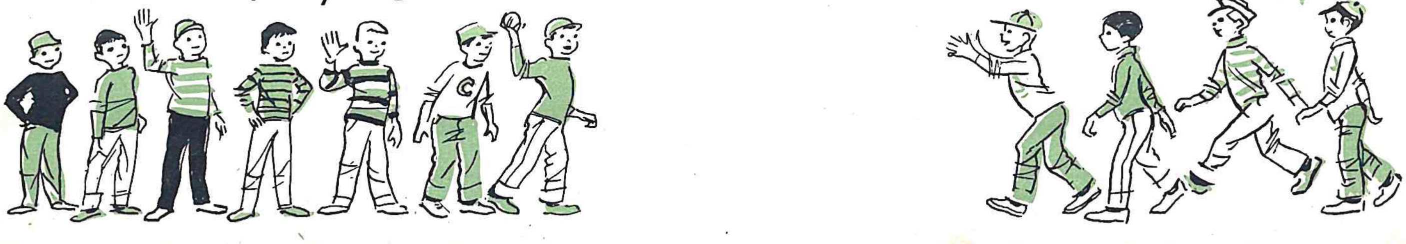
Sue had 8 dolls and Sally had 3 dolls. How many dolls did both girls have?



$$\begin{array}{r}8\\+3\\\hline 11\end{array}$$

Seven boys were playing ball. Four more boys came to play, too. How many boys were playing ball then?

$$\begin{array}{r}7\\+4\\\hline 11\end{array}$$



Let's Practice

In each box draw lines between the problems that have the same answers. One is done for you.

4+6	4+5	7 + 4	3 + 7	2 + 7	3 + 4
2+7	5+6	3 + 6	4 + 4	3 + 5	5 + 4
3+5	2+5	2 + 8	6 + 1	4 + 6	8 + 2
4+3	7+3	2 + 6	2 + 7	5 + 2	3 + 8
2+9	1 + 7	5 + 2	8 + 3	6 + 5	1 + 7

11 − 2	9 − 2	9 − 7	10 − 2	11 − 5	10 − 5
10 − 6	10 − 1	11 − 3	9 − 5	10 − 8	7 − 4
11 − 4	4 − 3	8 − 5	7 − 2	11 − 7	8 − 4
9 − 3	6 − 2	5 − 1	11 − 9	9 − 4	7 − 5
7 − 6	8 − 2	11 − 6	6 − 3	11 − 8	7 − 1

Add:

2	4	5	3	4	8	5	2	7
5	6	6	2	7	2	4	9	3
7	10	11	5	11	10	9	11	10

6	7	8	6	5	2	5	4	2
5	2	3	3	5	4	3	3	6
11	9	11	9	10	6	8	7	8

Subtract:

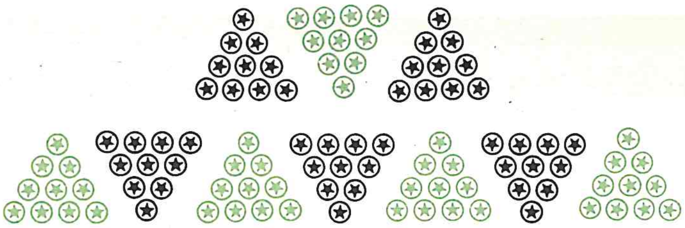
10	9	11	8	10	11	11	7	10
1	6	5	3	7	8	6	4	3
9	3	6	5	3	3	5	3	7

9	11	5	11	10	11	11	8	11
4	2	3	7	6	3	9	6	4
5	9	2	4	4	8	2	2	7

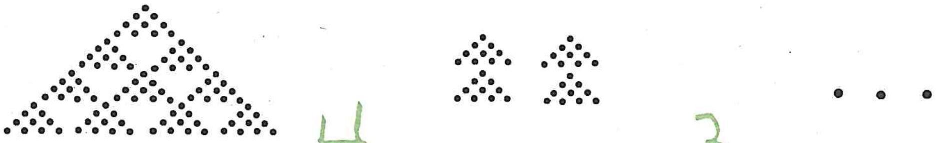
When, in the first problem, the students match 4+6 and 7+3, it may be explained that these are two different names for the same number.

About Big Numbers

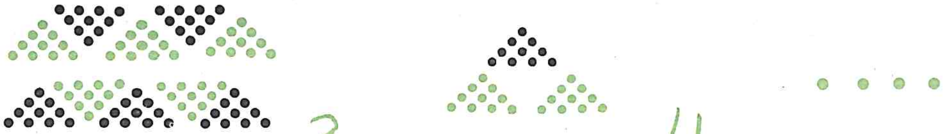
Write the numbers that tell how many:



1 hundred, 0 tens, and 0 ones are 100.



1 hundreds, 4 tens, and 3 ones are 143.



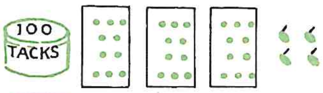
1 hundred, 3 tens, and 4 ones are 134.

Write the number of hundreds, tens, and ones:

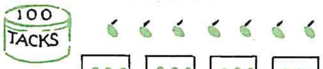
106 is 1 hundred, 0 tens, and 6 ones.

140 is 1 hundred, 4 tens, and 0 ones.

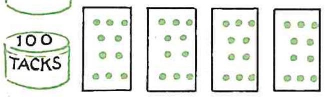
Write the numbers that tell how many:



1 hundred, 3 tens, and 4 ones are 134.



1 hundred, 0 tens, and 7 ones are 107.



1 hundred, 4 tens, and 0 ones are 140.

Read the numbers from 101 to 120:

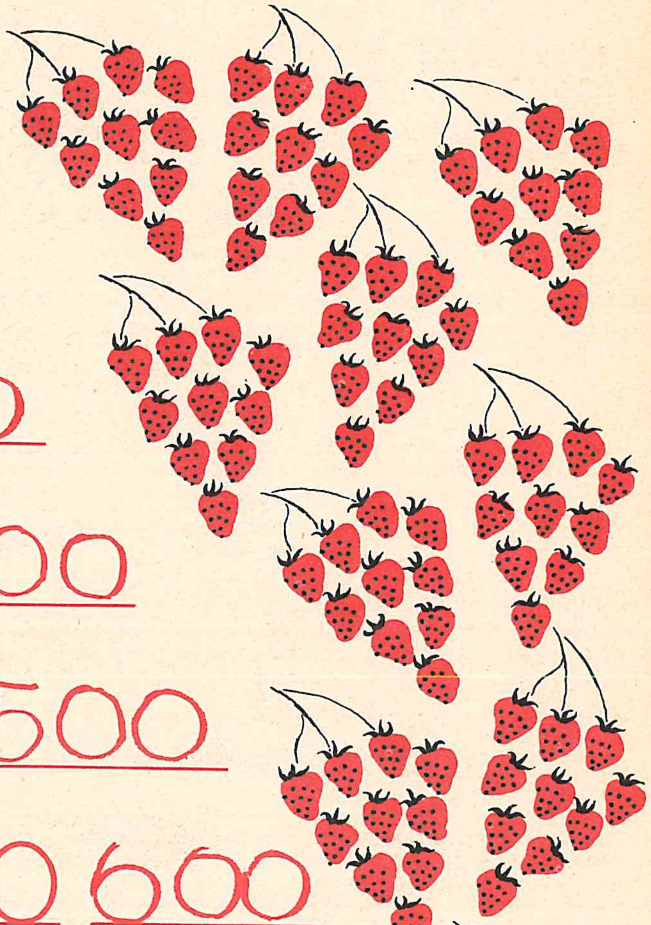
101 102 103 104 105 106 107 108 109 110
111 112 113 114 115 116 117 118 119 120

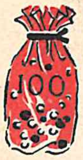
Write the numbers from 101 to 120:

101 102 103 104 105 106
107 108 109 110 111 112 113
114 115 116 117 118 119 120

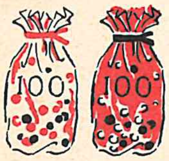
Develop concept that zero has place value, just as any other number. If it is in the one's place, it means zero ones; if it is in the ten's place, it means zero tens, and so on.

Counting by Hundreds to One Thousand

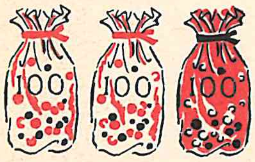




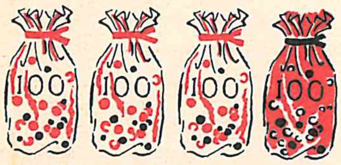
100 100



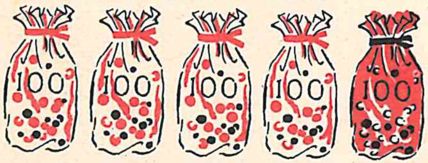
200 200



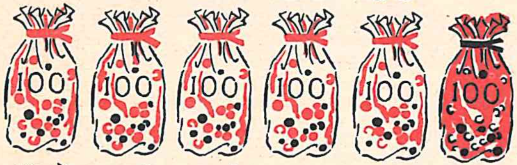
300 300


100
100
100
100

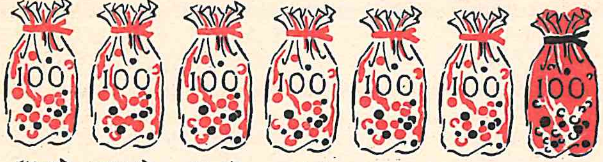
400 400


100
100
100
100
100

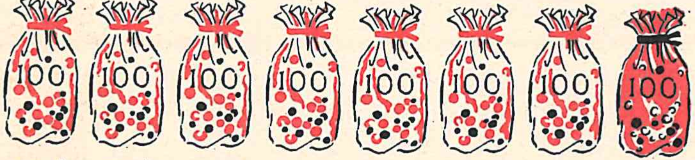
500 500


100
100
100
100
100
100

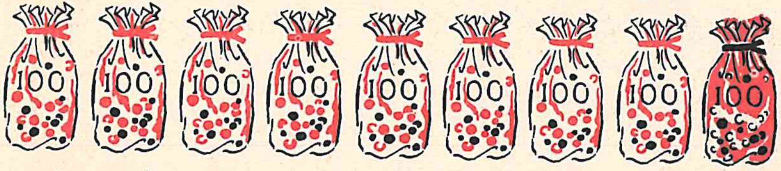
600 600


100
100
100
100
100
100
100

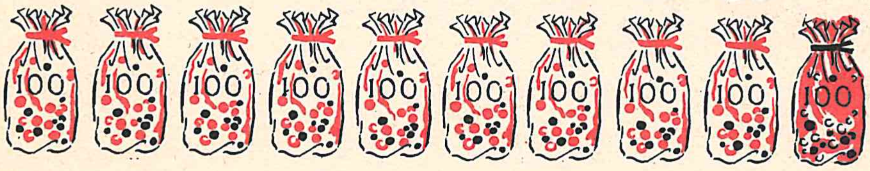
700 700


100
100
100
100
100
100
100
100

800 800


100
100
100
100
100
100
100
100
100

900 900


100
100
100
100
100
100
100
100
100
100

1000 1000

Show that counting by 100's to 1000 has the same order as counting by 1's to 10, and by 10's to 100.

More About Big Numbers

Can you count to 200?

Can you read these numbers?

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

Write the numbers that come before and after:

171 172 173 189 190 191 798 799 800

Write the number that comes between:

316 317 318 579 580 581 998 999 1000

Write the numbers that are missing in each row:

161 162 163 164 165 166 167 168 169 170

129 130 131 132 133 134 135 136 137 138

152 153 154 155 156 157 158 159 160

Arrange these numbers in order:

170	173	172	171	174	175
170	171	172	173	174	175

Put an X on the smallest number. Draw a ring around the largest number:

129 ~~110~~ 131 152 [✓ 184] 167 149 175

For pupils who need help, review the 100 chart on page 18 before extending the counting to 200.

Can You Write Big Numbers?

Write the numbers from 101 to 200:

101	102	103	104	105	106	107	108	[✓ 109]	[✓ 110]
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	[✓ 143]	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	[✓ 175]	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	[✓ 198]	199	200

On the chart draw rings around:

109 198 175 143 110

109 is 1 hundred, 0 tens, and 9 ones.

198 is 1 hundred, 9 tens, and 8 ones.

175 is 1 hundred, 7 tens, and 5 ones.

143 is 1 hundred, 4 tens, and 3 ones.

110 is 1 hundred, 1 tens, and 0 ones.

Get Your Pencils

Add:

5	7	4	3	5	5	6	2	5	3
2	4	3	8	6	3	5	7	5	6
7	11	7	11	11	8	11	9	10	9

4	3	2	4	3	5	2	8	6	2
6	4	9	7	4	4	3	3	4	4
10	7	11	11	7	9	5	11	10	6

7	1	4	4	9	3	2	6	2	8
3	8	4	5	2	3	2	1	6	2
10	9	8	9	11	6	4	7	8	10

Subtract:

10	10	11	11	9	9	11	10	10	8
2	4	4	9	2	4	5	3	8	4
8	6	7	2	7	5	6	7	2	4

9	11	10	10	10	11	9	9	11	11
3	3	6	5	7	6	5	1	8	2
6	8	4	5	3	5	4	8	3	9

8	10	9	10	11	9	9	8	8	7
3	9	7	1	7	8	6	7	1	3
5	1	2	9	4	1	3	1	7	4

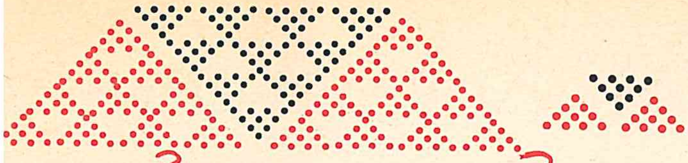
Work the problems. Watch the signs!

9	7	8	6	1	7	5	6	2	1
+1	+2	−4	−5	+7	−6	−3	+2	+8	+5
10	9	4	1	8	1	2	8	10	6

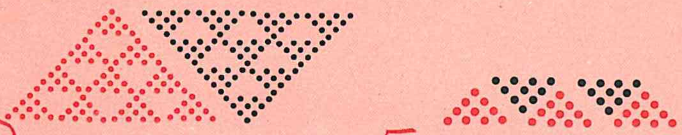
7	7	6	1	5	7	8	8	8	6
−2	+1	−3	+9	+1	−5	−6	+1	−5	−4
5	8	3	10	6	2	2	9	3	2

Sums and minuends through 11.

More About the Big Numbers



3 hundreds, 3 tens, and 3 ones are 333.



2 hundreds, 5 tens, and 4 ones are 254.

Write the number of hundreds, tens and ones:

476 is 4 hundreds, 7 tens, and 6 ones.

308 is 3 hundreds, 0 tens, and 8 ones.

295 is 2 hundreds, 9 tens, and 5 ones.

100
TACKS
10

Write the numbers that tell how many:

4 hundreds, 2 tens, and 9 ones are 429.

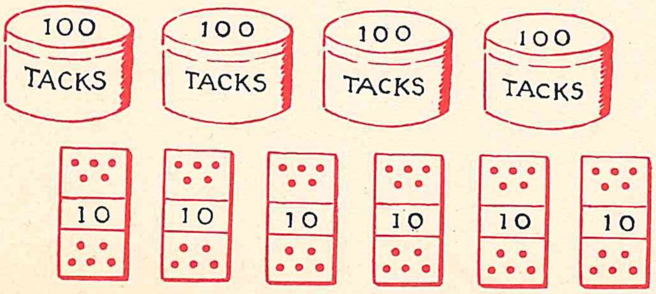
6 hundreds, 0 tens, and 0 ones are 600.

9 hundreds, 8 tens, and 1 one are 981.

7 hundreds, 4 tens, and 0 ones are 740.

5 hundreds, 0 tens, and 6 ones are 506.

On the chart write the numbers that tell how many hundreds, tens, and ones:


100
TACKS
100
TACKS
100
TACKS
100
TACKS
10
10
10
10
10
10

	Hundreds	Tens	Ones
460	4	6	0
800	8	0	0
329	3	2	9
781	7	8	1
507	5	0	7

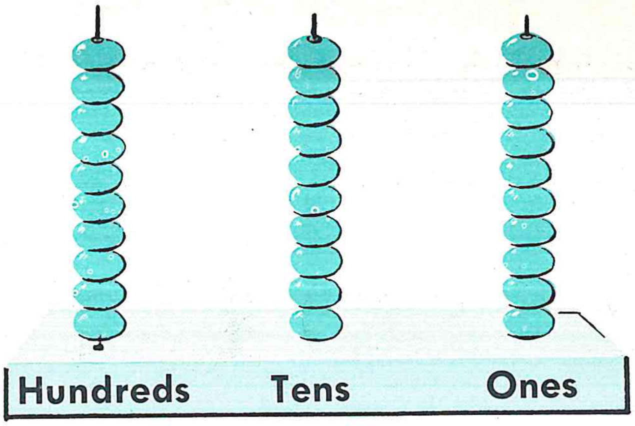
Using an Abacus

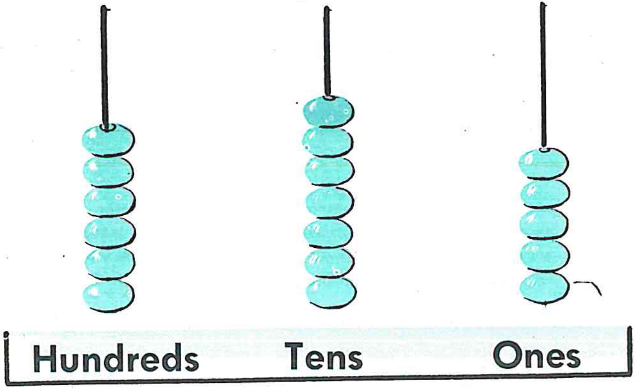
How many beads in each place?

ones' place. 10

tens' place. 10

hundreds' place. 10


Hundreds
Tens
Ones


Hundreds
Tens
Ones

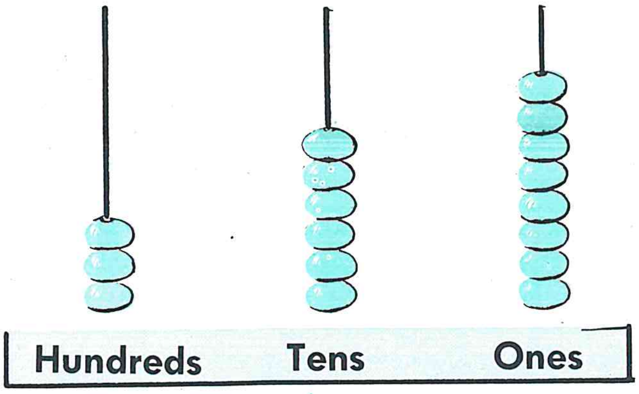
There are:

6 hundreds

7 tens

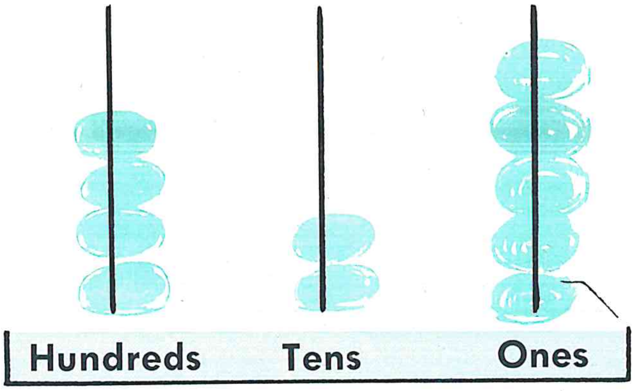
5 ones

The number is 675.


Hundreds
Tens
Ones

3 6 8

The number is 368.


Hundreds
Tens
Ones

Draw beads to show the number 425.

Write the missing numbers:

489 is 4 hundreds, 8 tens, and 9 ones.

974 is 9 hundreds, 7 tens, and 4 ones.

236 is 2 hundreds, 3 tens, and 6 ones.

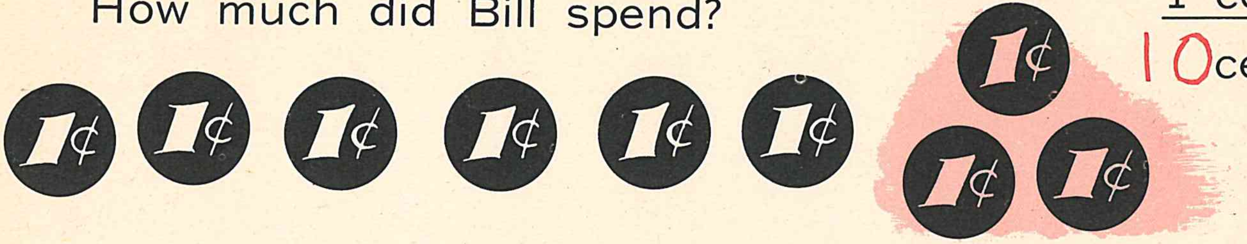
Place value of 3-place numbers. The open-end abacus is illustrated because it is best suited to developing the idea of exchanging, which is introduced later in this book, since more than ten counters can be placed on a rod.

Adding 3 one-digit numbers with sums through eleven. Show that you add the first two numbers, and then add the partial sum to the third.

Adding Three Numbers

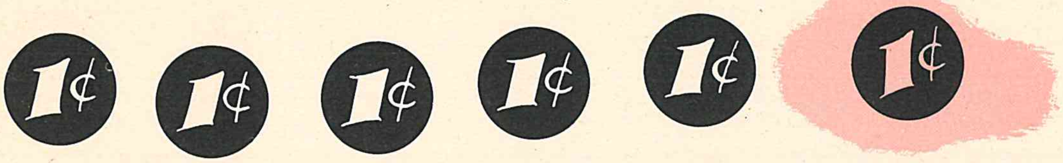
Bill spent 6 cents, 3 cents, and 1 cent.
How much did Bill spend?

6 cents
3 cents
1 cent
10 cents



Ann spent 5 cents, 1 cent, and 3 cents.
How much did Ann spend?

5 cents
1 cent
3 cents
9 cents



Add:

2¢	5¢	2¢	2¢	2¢	5¢	2¢	1¢
4¢	2¢	3¢	7¢	4¢	1¢	2¢	1¢
3¢	1¢	1¢	2¢	1¢	3¢	2¢	5¢
9¢	8¢	6¢	11¢	7¢	9¢	6¢	7¢

7	2	4	3	2	3	5	6	8
1	6	3	5	6	7	3	1	1
2	3	2	1	2	1	2	2	1
10	11	9	9	10	11	10	9	10

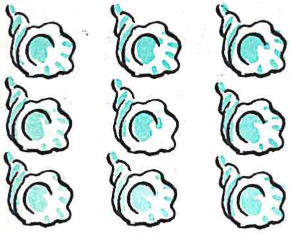
3	1	3	3	3	4	4	2	2
3	5	2	3	4	1	2	2	4
5	4	4	2	2	2	2	3	3
11	10	9	8	9	7	8	7	9

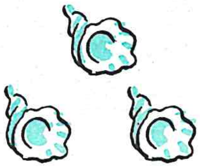
1	1	4	3	1	2	1	2	3
3	2	3	2	3	2	4	1	1
3	3	4	1	1	7	2	3	3
7	6	11	6	5	11	7	6	7

Checking addition by adding down and then adding up may be developed. Note that with three numbers the associative law is developed: 6 + 3 = 9; 9 + 1 = 10 is the same as 3 + 1 = 4; 6 + 4 = 10. Numbers may be grouped in any order for addition.

Adding to Make Twelve

Write the numbers in the spaces:

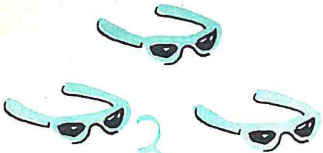


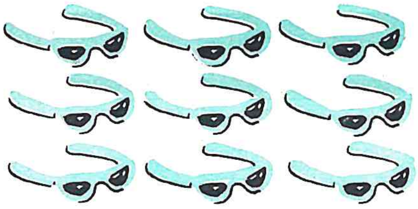


9 + 3 = 12

$$\begin{array}{r} 9 \\ +3 \\ \hline 12 \end{array}$$

9 and 3 are 12.

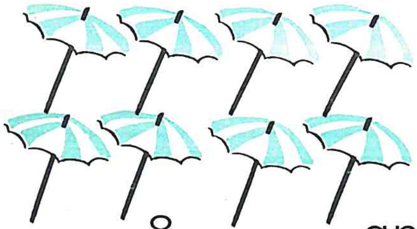


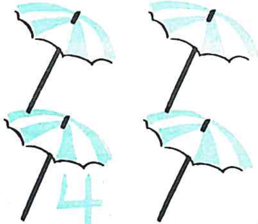


3 + 9 = 12

$$\begin{array}{r} 3 \\ +9 \\ \hline 12 \end{array}$$

3 and 9 are 12.

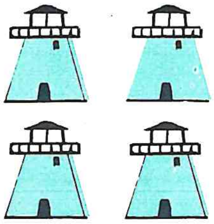


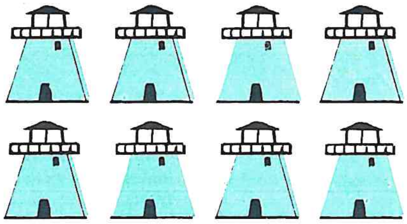


8 + 4 = 12

$$\begin{array}{r} 8 \\ +4 \\ \hline 12 \end{array}$$

8 and 4 are 12.





4 + 8 = 12

$$\begin{array}{r} 4 \\ +8 \\ \hline 12 \end{array}$$

4 and 8 are 12.

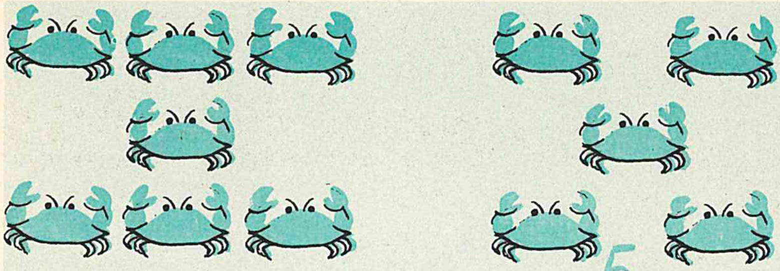
3 and 9 are 12.
8 and 4 are 12.
4 and 8 are 12.
3 + 9 = 12
6 + 4 = 10
8 + 4 = 12

8 and 4 are 12.
9 and 3 are 12.
9 and 3 are 12.
9 + 3 = 12
4 + 8 = 12
3 + 9 = 12

4 and 8 are 12.
3 and 9 are 12.
6 and 5 are 11.
8 + 4 = 12
9 + 3 = 12
4 + 8 = 12

More Adding to Make Twelve

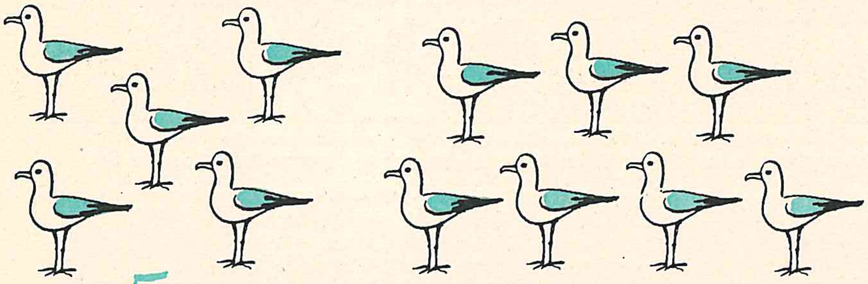
Write the numbers in the spaces:



7 + 5 = 12

$$\begin{array}{r} 7 \\ +5 \\ \hline 12 \end{array}$$

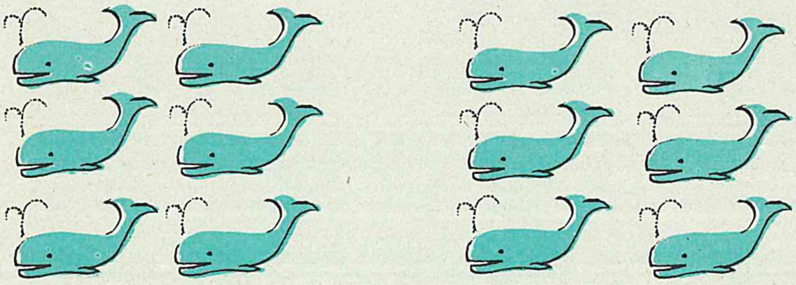
7 and 5 are 12.



5 + 7 = 12

$$\begin{array}{r} 5 \\ +7 \\ \hline 12 \end{array}$$

5 and 7 are 12.



Two 6's are 12.

$$\begin{array}{r} 6 \\ +6 \\ \hline 12 \end{array}$$

6 and 6 are 12.

7 and 5 are 12.

6 and 6 are 12.

5 + 7 = 12

7 + 5 = 12

5 and 7 are 12.

7 and 5 are 12.

6 + 6 = 12

7 + 5 = 12

6 and 6 are 12.

7 and 5 are 12.

7 + 5 = 12

6 + 6 = 12

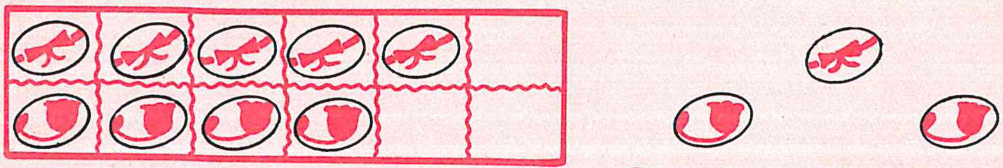
Add:

3	7	6	8	5	4	8	7	9	5
9	4	6	4	4	8	2	5	3	7
12	11	12	12	9	12	10	12	12	12

You may follow the suggestions given on pages 49 and 50 in teaching these lessons.

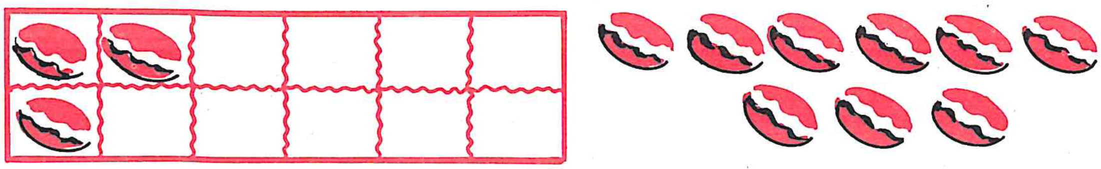
Take Away From Twelve

Write the numbers in the spaces:



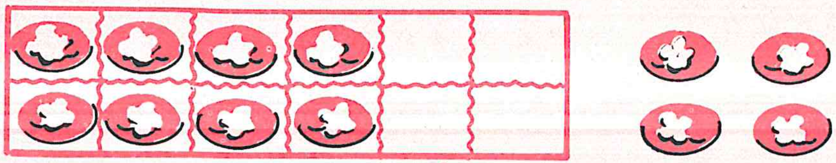
$\begin{array}{r}12\\-3\\\hline 9\end{array}$

12 🥚s take away 3 🥚s is 9 🥚s. 12 − 3 = 9



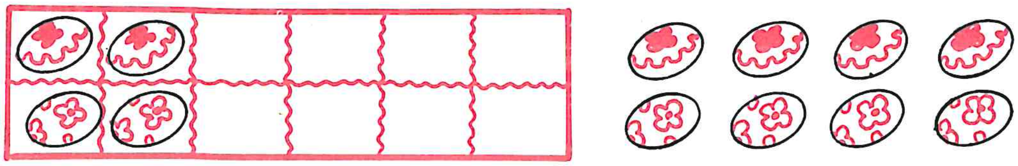
$\begin{array}{r}12\\-9\\\hline 3\end{array}$

12 🥚s take away 9 🥚s is 3 🥚s. 12 − 9 = 3



$\begin{array}{r}12\\-4\\\hline 8\end{array}$

12 🥚s take away 4 🥚s is 8 🥚s. 12 − 4 = 8



$\begin{array}{r}12\\-8\\\hline 4\end{array}$

12 🥚s take away 8 🥚s is 4 🥚s. 12 − 8 = 4

12 take away 3 is 9.
12 take away 4 is 8.
10 take away 3 is 7.
12 take away 9 is 3.

12 take away 8 is 4.
12 take away 4 is 8.
12 take away 8 is 4.
12 take away 3 is 9.

12 − 9 = 3
12 − 4 = 8

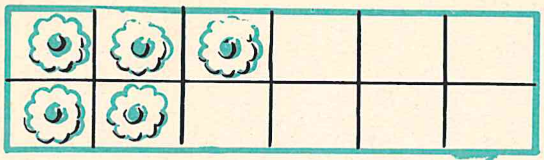
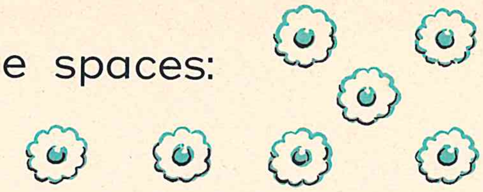
7 − 2 = 5
12 − 3 = 9

12 − 8 = 4
12 − 3 = 9

12 − 8 = 4
12 − 9 = 3

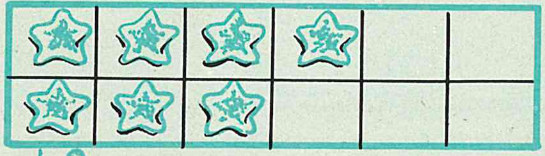
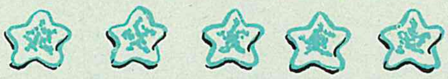
Take Away From Twelve

Write the numbers in the spaces:

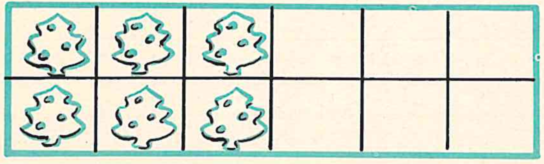
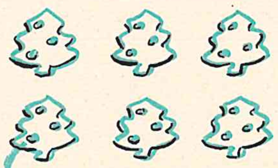
12
−7
5

12 ✿s take away 7 ✿s is 5 ✿s. 12 − 7 = 5

12
−5
7

12 ★s take away 5 ★s is 7 ★s. 12 − 5 = 7

12
−6
6

12 🎄s take away 6 🎄s is 6 🎄s. 12 − 6 = 6

12 take away 5 is 7.

12 take away 6 is 6.

12 take away 7 is 5.

12 take away 7 is 5.

12 take away 6 is 6.

12 take away 5 is 7.

12 − 7 = 5

12 − 5 = 7

12 − 6 = 6

12 − 5 = 7

12 − 7 = 5

12 − 6 = 6

Write the answers:

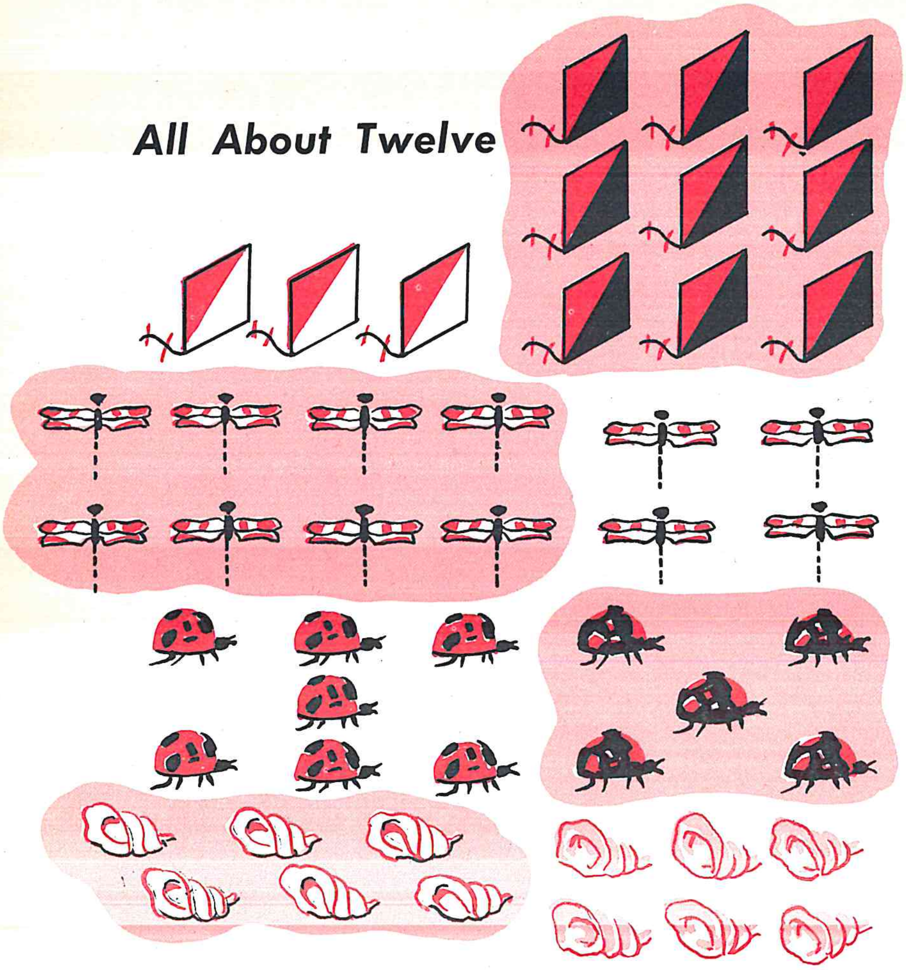
12	12	12	12	12	12	12
−4	−8	−5	−9	−6	−7	−3
8	4	7	3	6	5	9

Subtract:

12	11	12	12	11	12	12	10	12	12
3	5	8	6	8	9	7	2	5	4
9	6	4	6	3	3	5	8	7	8

See pages 51 and 52 for teaching suggestions.

All About Twelve



Write the answers:

9	3	12	12
+3	+9	−9	−3
12	12	3	9
8	4	12	12
+4	+8	−8	−4
12	12	4	8
7	5	12	12
+5	+7	−7	−5
12	12	5	7
	6		12
	+6		−6
	12		6

Add:

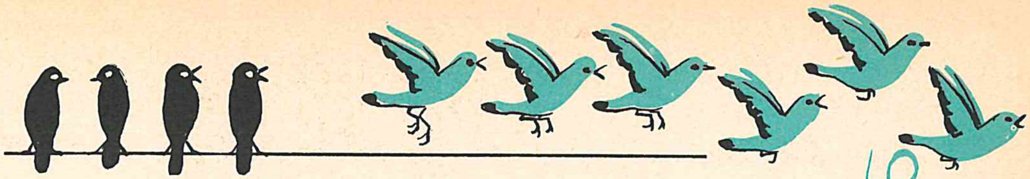
8	5	6	9	7	6	6	5	3
4	5	5	3	3	6	3	3	9
12	10	11	12	10	12	9	8	12
8	4	5	4	4	4	7	7	9
3	5	7	3	7	8	5	4	2
11	9	12	7	11	12	12	11	11

Subtract:

11	12	10	12	12	11	12	9	10
5	8	2	5	3	4	6	6	4
6	4	8	7	9	7	6	3	6
12	9	12	11	12	10	7	8	11
9	5	7	2	4	3	4	4	3
3	4	5	9	8	7	3	4	8

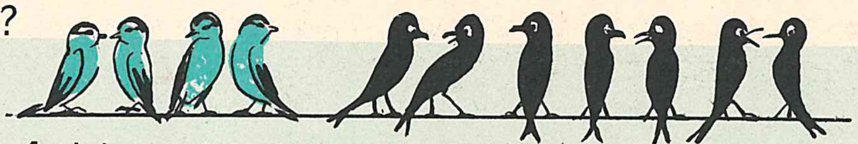
See page 53 for teaching suggestions.

Number Stories



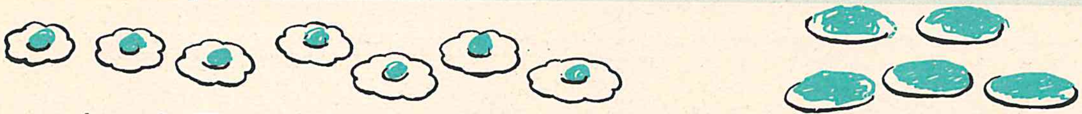
Jane saw 10 birds sitting on a fence. 6 of them flew away. How many birds were left?

10
-6
4



Sue saw 4 blue birds and 7 black birds. How many birds did she see?

4
+7
11

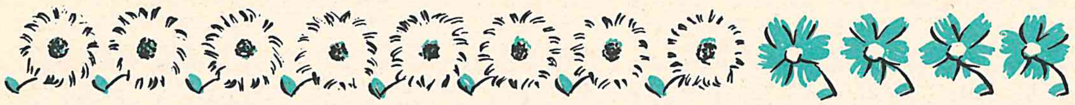


Ann had 7 cookies. She bought 5 more. How many cookies had she then?

7
+5
12

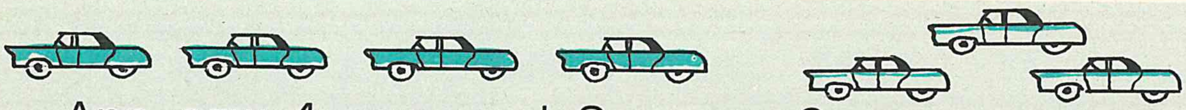
Sue had 8 pieces of candy. She gave 5 of them to the girls. How many pieces of candy had she left?

8
-5
3



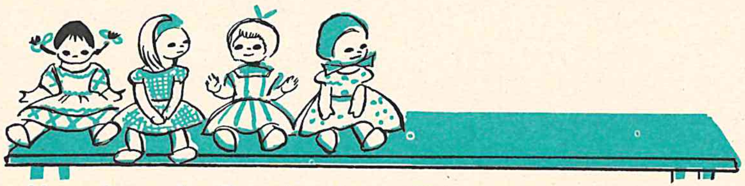
Ann picked 8 white flowers and 4 blue flowers. How many flowers did Ann pick?

8
+4
12



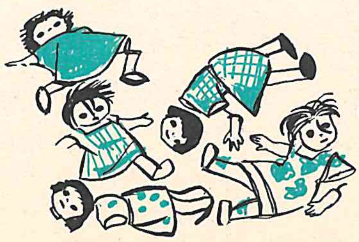
Ann saw 4 cars and Sue saw 3 cars. How many cars did the girls see?

4
+3
7



Sally had 9 dolls. She broke 5 of them. How many dolls did she have left?

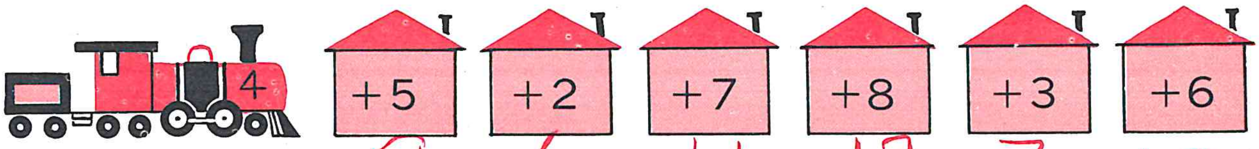
9
-5
4



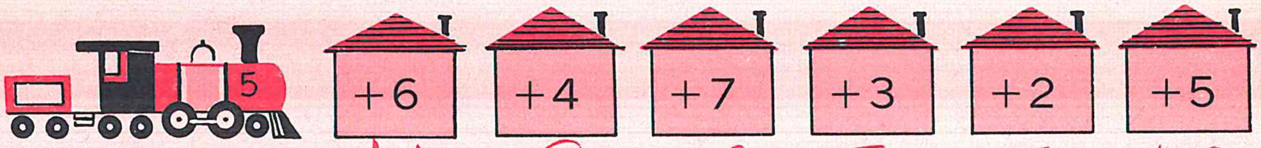
Sums and minuends through 12. Adding and subtracting numbers mentally, with sums and minuends through twelve.

How Fast Can You Add and Subtract?

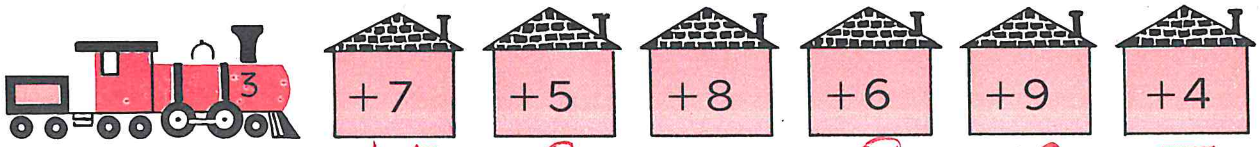
Ride the engine. Add the number of each station to the number on the engine as you ride along:



9 6 11 12 7 10

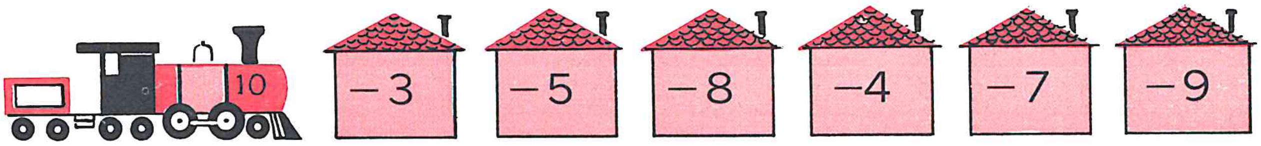


11 9 12 8 7 10

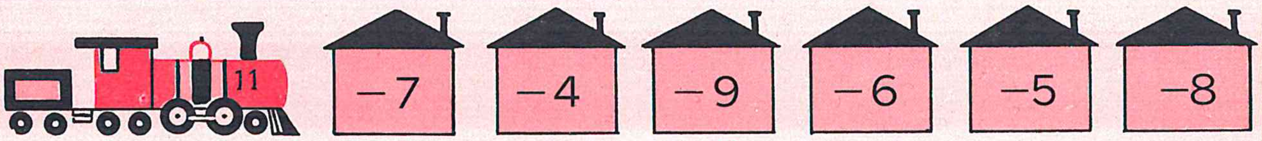


10 8 11 9 12 7

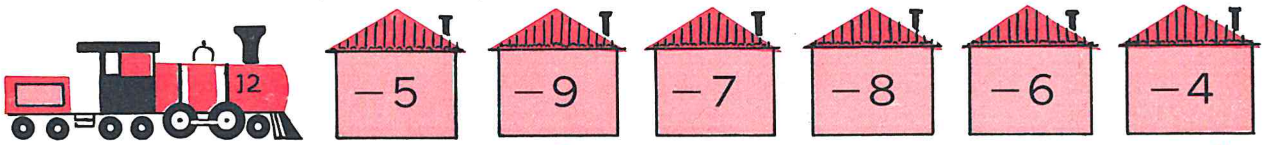
As you ride along, subtract the number on each of the stations from the number of your train:



7 5 2 6 3 1



4 7 2 5 6 3

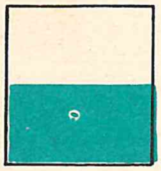


7 3 5 4 6 8

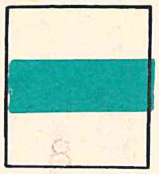
Encourage pupils to do these problems mentally to develop as much speed as possible. These problems consist of addition and subtraction facts which should become an automatic response on the part of the pupil.

Things You Know

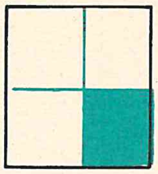
Write the fraction that tells what part is colored:



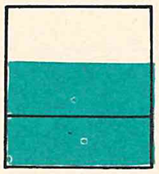
$\frac{1}{2}$



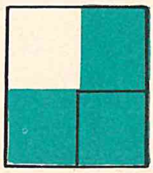
$\frac{1}{3}$



$\frac{1}{4}$

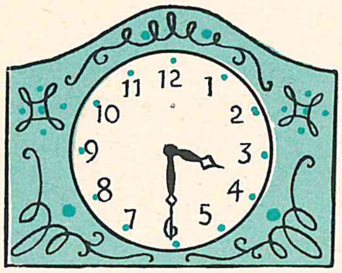


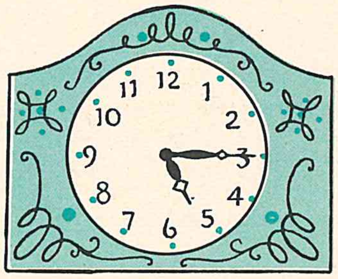
$\frac{2}{3}$

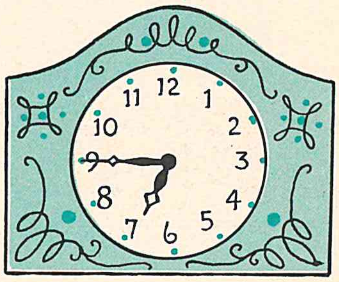


$\frac{3}{4}$

What time is it?

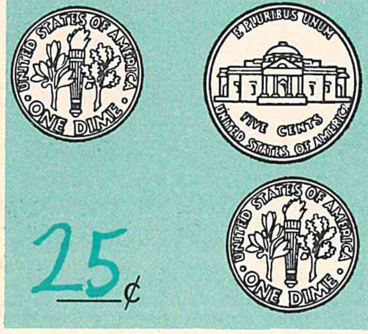

12
1
2
3
4
5
6
7
8
9
10
11


12
1
2
3
4
5
6
7
8
9
10
11

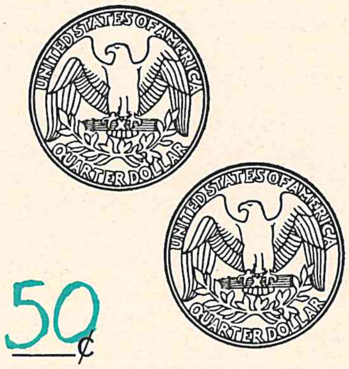

12
1
2
3
4
5
6
7
8
9
10
11

Half past 3 Quarter past 5 Quarter to 7

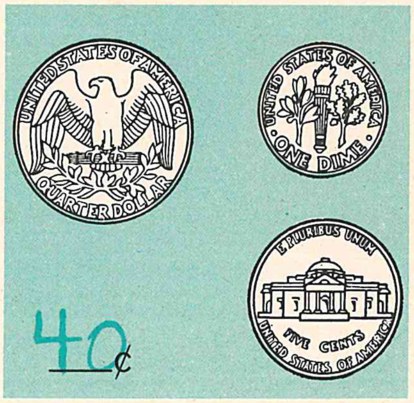
Count the money:


UNITED STATES OF AMERICA
ONE DIME
E PLURIBUS UNUM
FIVE CENTS
UNITED STATES OF AMERICA
UNITED STATES OF AMERICA
ONE DIME

25¢


UNITED STATES OF AMERICA
QUARTER DOLLAR
UNITED STATES OF AMERICA
QUARTER DOLLAR

50¢


UNITED STATES OF AMERICA
QUARTER DOLLAR
UNITED STATES OF AMERICA
ONE DIME
E PLURIBUS UNUM
FIVE CENTS
UNITED STATES OF AMERICA

40¢

Add:

			2	4	4
2	6	8	3	2	4
9	6	4	1	3	3
11	12	12	6	9	11

Subtract:

11	12	11	11
3	5	7	9
8	7	4	2

Write the numbers. Watch the signs!

3 + 9 = 12
7 + 4 = 11
5 + 6 = 11

4 + 7 = 11
12 − 3 = 9
12 − 4 = 8

9 + 2 = 11
11 − 6 = 5
4 + 8 = 12

7 + 5 = 12
12 − 6 = 6
3 + 8 = 11

Can You Do This?

Write the numbers that tell how many:

4 hundreds, 6 tens, and 2 ones are 462.

2 hundreds, 0 tens, and 4 ones are 204.

Write the numbers:

6 tens and 4 ones are 64.

8 tens and 7 ones are 87.

5 tens are the same as 50.

7 tens are the same as 70.

Write the numbers that tell how many tens and ones:

36 is 3 tens and 6 ones.

89 is 8 tens and 9 ones.

40 is 4 tens and 0 ones.

57 is 5 tens and 7 ones.

Write the number of hundreds, tens, and ones:

379 is 3 hundreds, 7 tens, and 9 ones.

490 is 4 hundreds, 9 tens, and 0 ones.

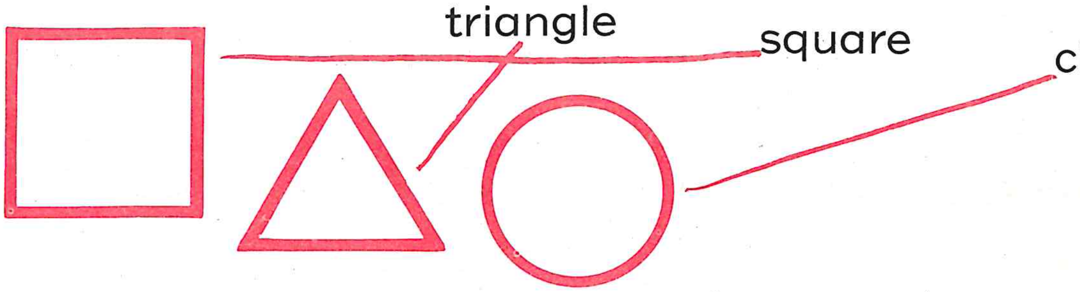
Add:

3	7	9	5	4	3	6	8	5	2
9	4	2	7	6	8	6	4	6	8
12	11	11	12	10	11	12	12	11	10

Subtract:

10	12	11	12	10	12	11	11	11
6	4	2	7	5	9	4	6	8
4	8	9	5	5	3	7	5	3

Draw a line from each shape to its name:

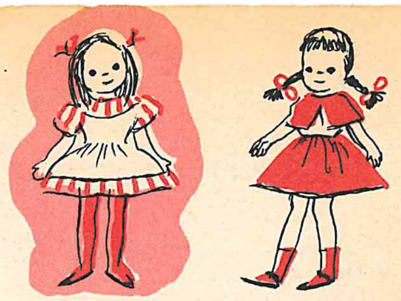


triangle

square

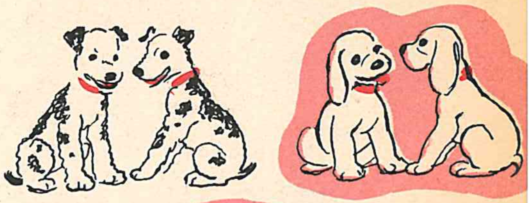
circle

The Doubles



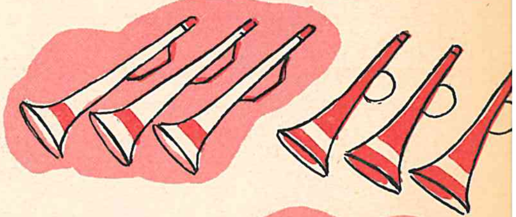
1 doll and 1 doll are 2 dolls.

1 + 1 = 2 Two 1's are 2.



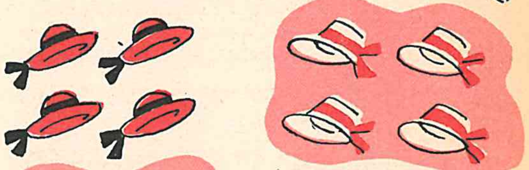
2 dogs and 2 dogs are 4 dogs.

2 + 2 = 4 Two 2's are 4.



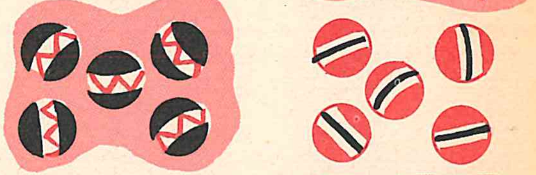
3 horns and 3 horns are 6 horns.

3 + 3 = 6 Two 3's are 6.



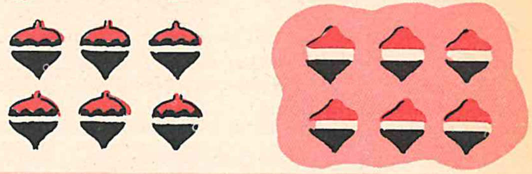
4 hats and 4 hats are 8 hats.

4 + 4 = 8 Two 4's are 8.



5 balls and 5 balls are 10 balls.

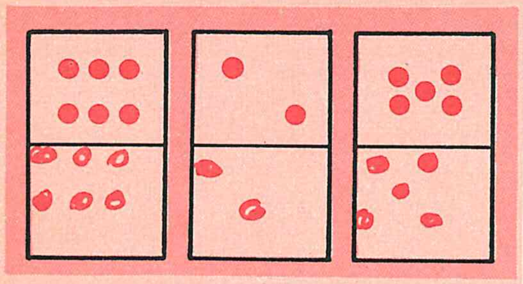
5 + 5 = 10 Two 5's are 10.



6 tops and 6 tops are 12 tops.

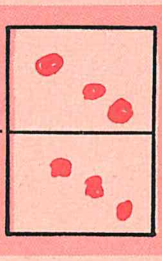
6 + 6 = 12 Two 6's are 12.

Make doubles:

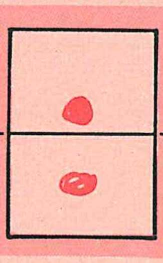


Make dots for these doubles.
Then add the numbers:

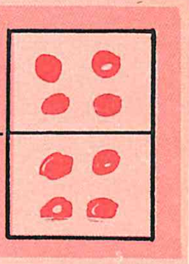
3
3
6



1
1
2



4
4
8



2 + 2 = 4
3 + 3 = 6
5 + 5 = 10

1 + 1 = 2
4 + 4 = 8
6 + 6 = 12

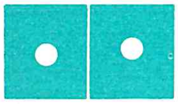
Two 2's are 4.
Two 6's are 12.
Two 4's are 8.

Two 3's are 6.
Two 5's are 10.
Two 1's are 2.

Readiness for multiplication. Do not use the term multiplication.

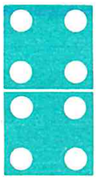
Doubles and Near Doubles

Write the answers:



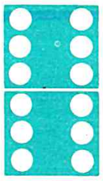
1 + 1 = 2

Two 1's are 2.



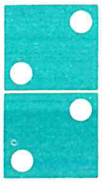
4 + 4 = 8

Two 4's are 8.



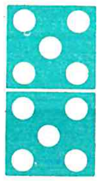
6 + 6 = 12

Two 6's are 12.



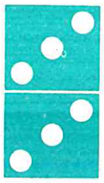
2 + 2 = 4

Two 2's are 4.



5 + 5 = 10

Two 5's are 10.

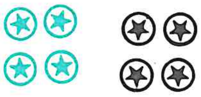


3 + 3 = 6

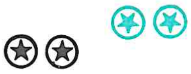
Two 3's are 6.

Write the answers:

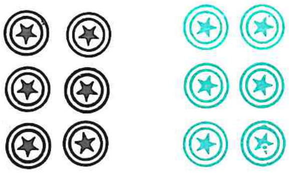
Two 1's are 2.



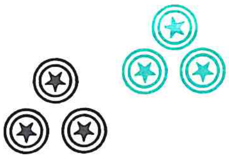
Two 4's are 8.



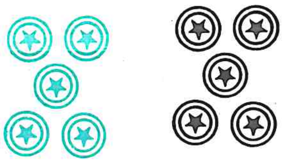
Two 2's are 4.



Two 6's are 12.



Two 3's are 6.



Two 5's are 10.

Add. Draw a ring around each pair of doubles:

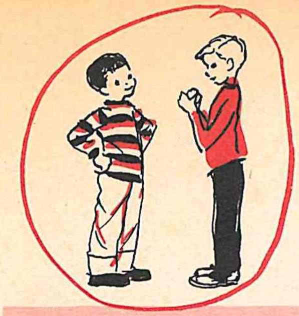
4	1	1	7	3	5	2	5	6	2
4	5	1	2	3	5	3	6	6	2
8	6	2	9	6	10	5	11	12	4

Doubles and near doubles are easy to add.

4	4	3	3	5	5	1	1	2	2
4	5	3	4	5	6	1	2	2	3
8	9	6	7	10	11	2	3	4	5

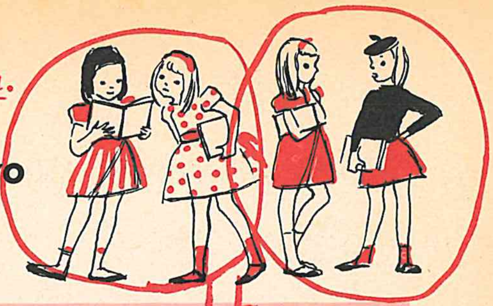
4	4	3	3	5	5	6	6	2	2
4	3	3	2	5	4	6	5	2	1
8	7	6	5	10	9	12	11	4	3

This page provides more readiness for multiplication, as well as training for mental arithmetic. When the pupil learns "Two 4's are 8," he can rapidly add 1 to 8 to find 4 + 5 = 9.



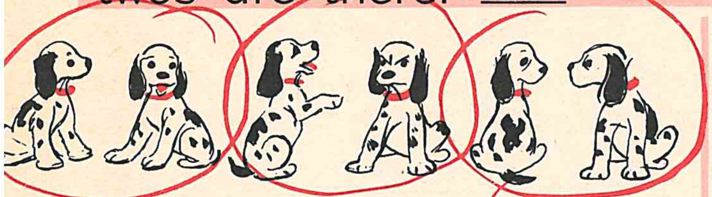
Readiness for division.
Do not use the term division.

Finding Groups of Two

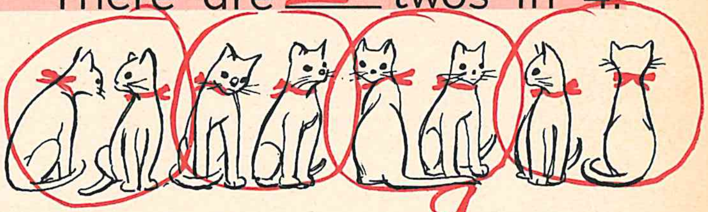


Count the boys: 2
Circle 2: How many twos are there? 1

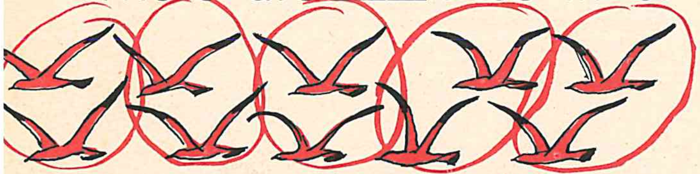
Count the girls: 4
Circle each group of 2:
There are 2 twos in 4.



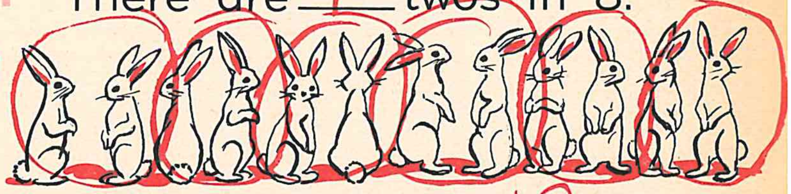
Count the dogs: 6
Circle each group of 2:
There are 3 twos in 6.



Count the cats: 8
Circle each group of 2:
There are 4 twos in 8.

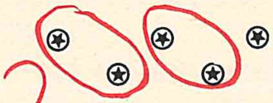


Count the birds: 10
Circle each group of 2.
There are 5 twos in 10.

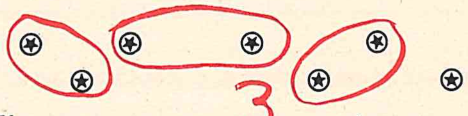


Count the rabbits: 12
Circle each group of 2:
There are 6 twos in 12.

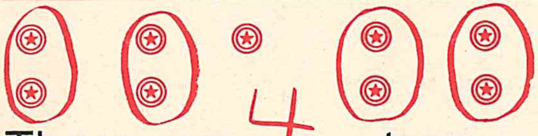
Count the dots. Circle each group of 2. Write the answers:



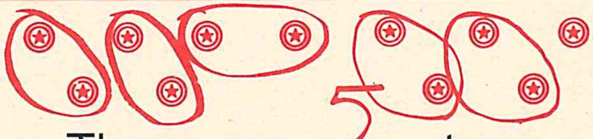
There are 2 twos.
There is 1 left over.



There are 3 twos.
There is 1 left over.



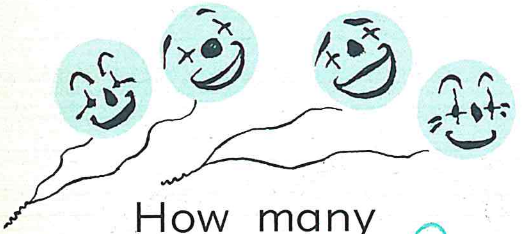
There are 4 twos.
There is 1 left over.



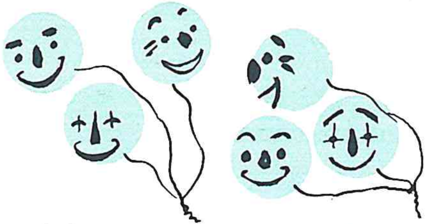
There are 5 twos.
There is 1 left over.

More readiness for division.

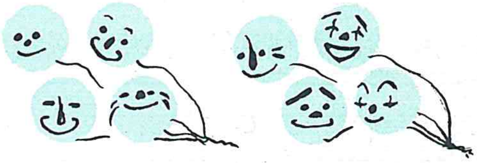
Finding Groups of Different Sizes



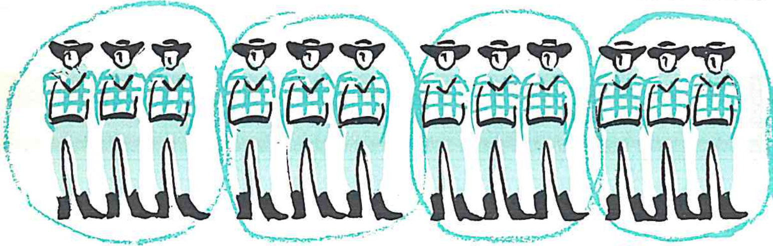
How many twos? 2



How many threes? 2



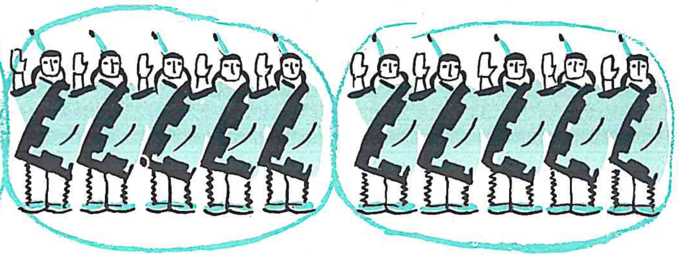
How many fours? 2



Count the cowboys: 12

Circle each group of 3:

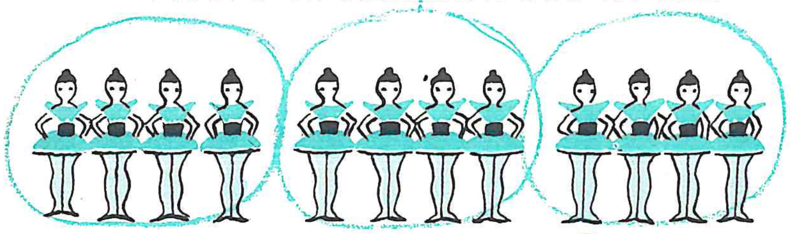
There are 4 threes in 12.



Count the Indians: 10

Circle each group of 5:

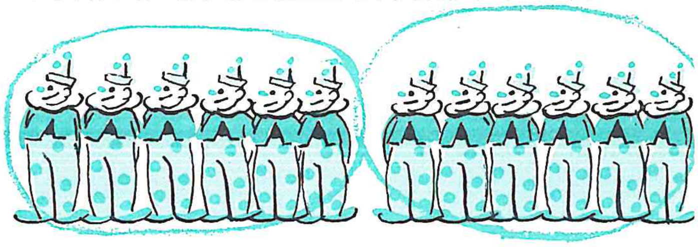
There are 2 fives in 10.



Count the girls: 12

Circle each group of 4:

There are 3 fours in 12.

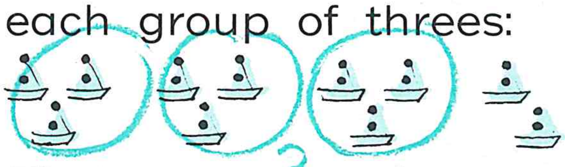


Count the clowns: 12

Circle each group of 6:

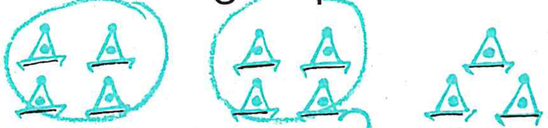
There are 2 sixes in 12.

Draw a ring around each group of threes:



There are 3 threes and 2 left over.

Draw a ring around each group of fours:



There are 2 fours and 3 left over.

Dividing groups of 3, 4, 5, and 6 with some remainders. The teacher may extend the combinations by asking, "How many 2's are there in 12?"

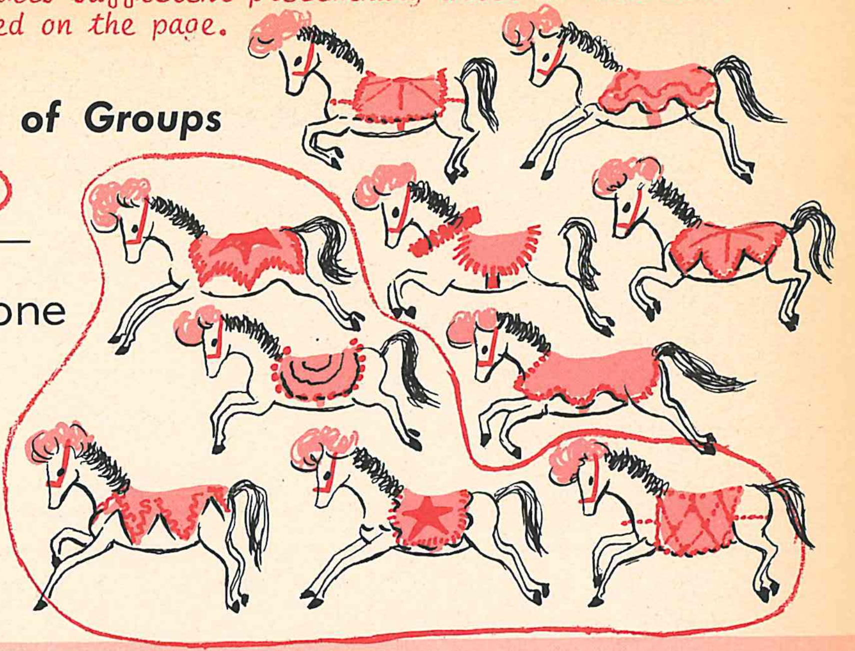
Fractional parts of groups. Give pupils sufficient preliminary drill to make sure they understand the concepts developed on the page.

Finding Halves and Thirds of Groups

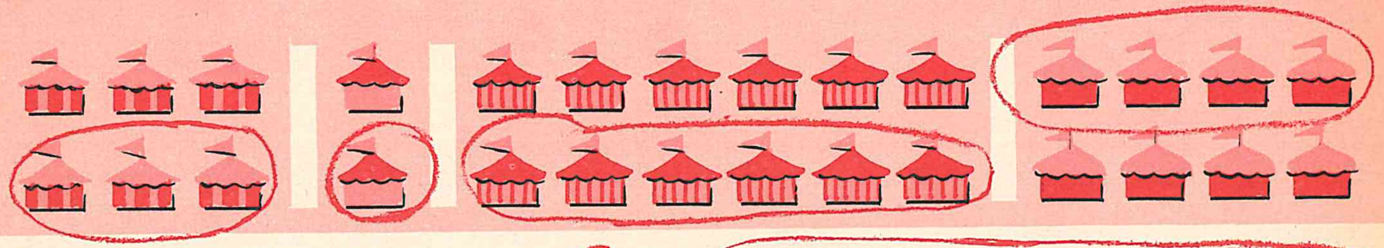
Count the horses: 10

Draw a fence around one half of the horses:

How many horses are outside the fence? 5



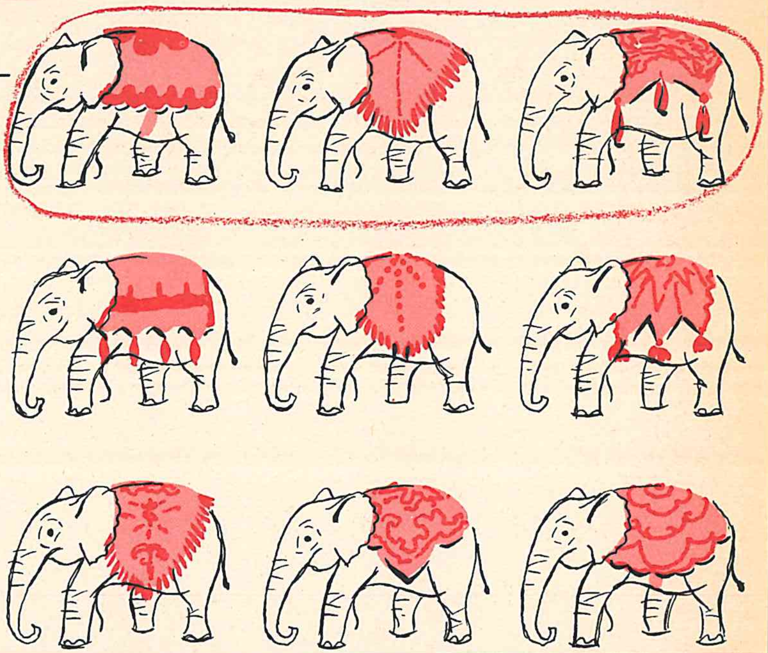
Draw a ring around one half of each group:



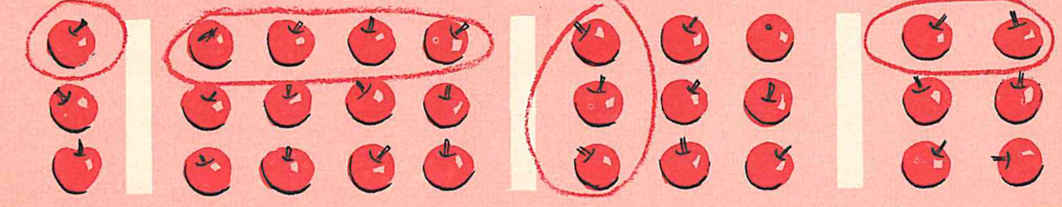
Count the elephants: 9

Draw a fence around one third of the elephants:

How many elephants are inside the fence? 3

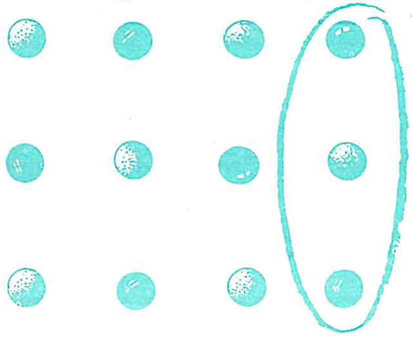


Draw a ring around one third of each group:



Furthering the concept of one-half and one-third of groups.

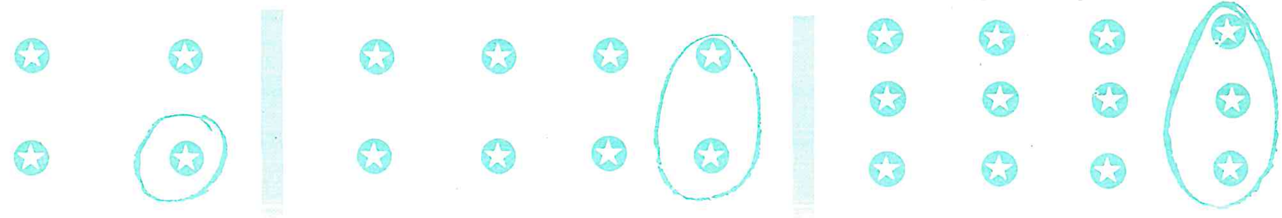
Finding Fourths of Groups



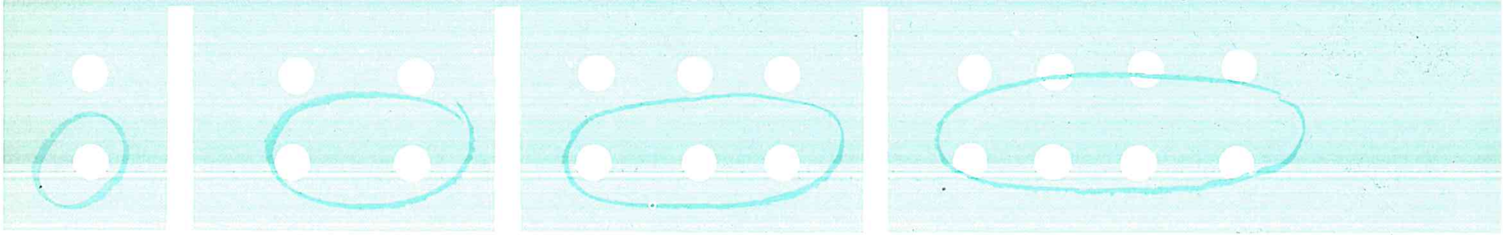
Bob's marbles.

Count the marbles: 12 Bob gave one fourth of his marbles to Joe. Draw a ring around one fourth of the marbles. How many marbles did Bob give Joe? 3

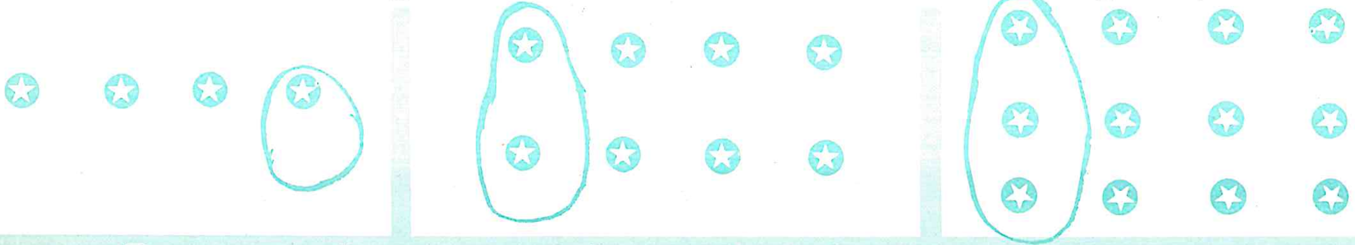
Draw a ring around one fourth of each group:



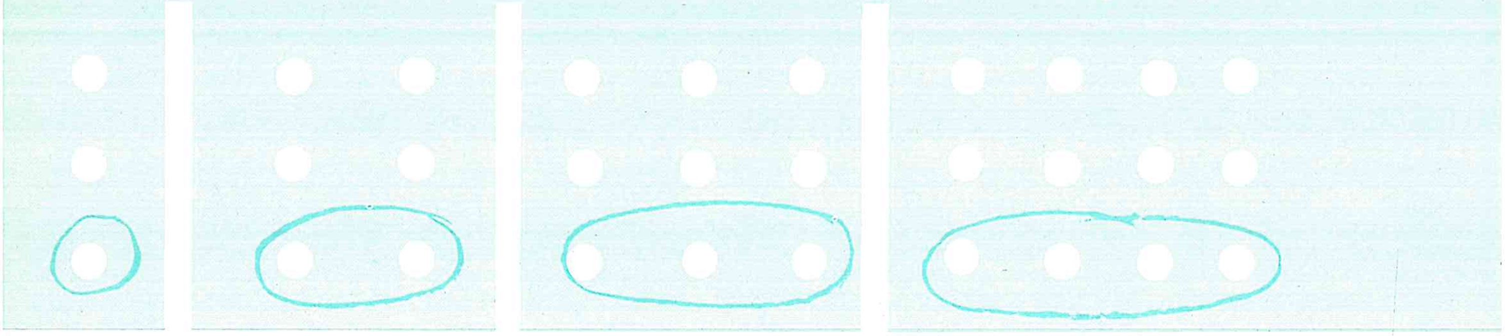
Draw a ring around one half of each group:



Draw a ring around one fourth of each group:

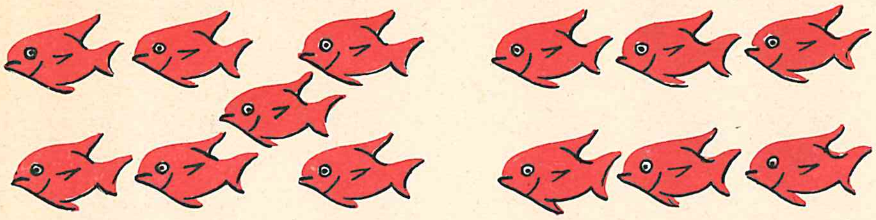


Draw a ring around one third of each group:



Adding to Make Thirteen

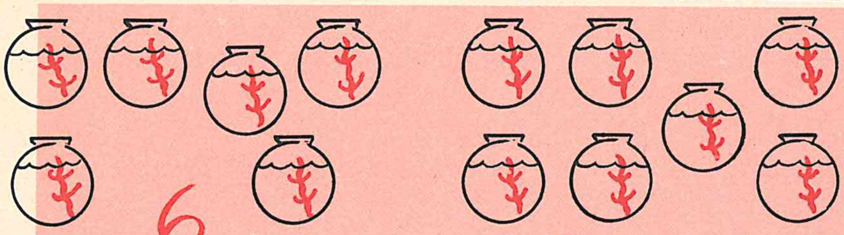
Write the numbers in the spaces:



7 and 6 are 13.

7 + 6 = 13

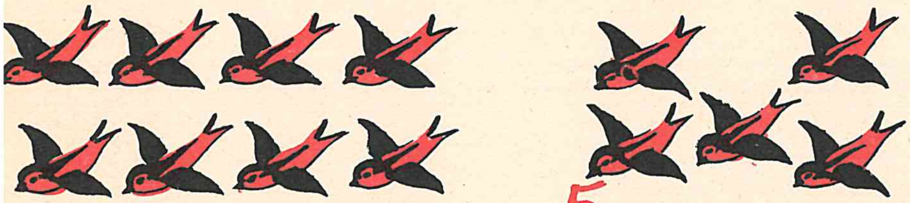
$\begin{array}{r}7\\+6\\\hline 13\end{array}$



6 and 7 are 13.

6 + 7 = 13

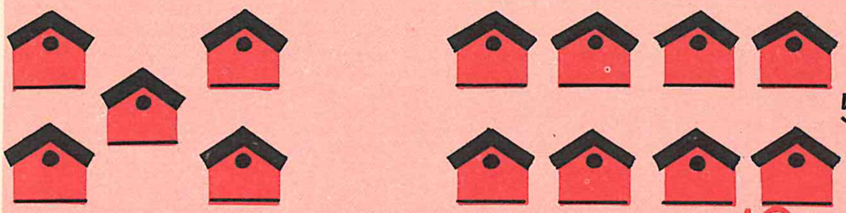
$\begin{array}{r}6\\+7\\\hline 13\end{array}$



8 and 5 are 13.

8 + 5 = 13

$\begin{array}{r}8\\+5\\\hline 13\end{array}$



5 and 8 are 13.

5 + 8 = 13

$\begin{array}{r}5\\+8\\\hline 13\end{array}$

6 and 7 are 13.
8 and 5 are 13.
7 and 6 are 13.

5 and 8 are 13.
7 and 6 are 13.
7 and 3 are 10.

6 and 7 are 13.
8 and 5 are 13.
5 and 8 are 13.

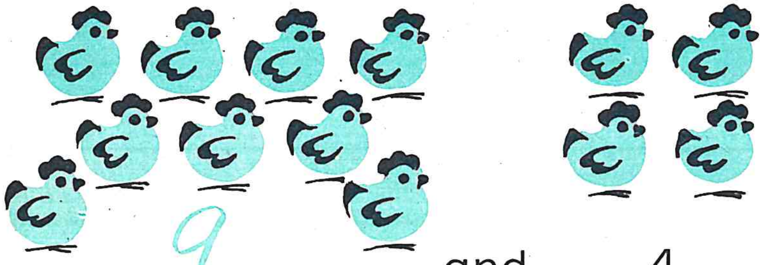
6 + 7 = 13
8 + 5 = 13
7 + 2 = 9

6 + 7 = 13
8 + 5 = 13
7 + 6 = 13

5 + 8 = 13
5 + 8 = 13
7 + 6 = 13

More Adding to Make Thirteen

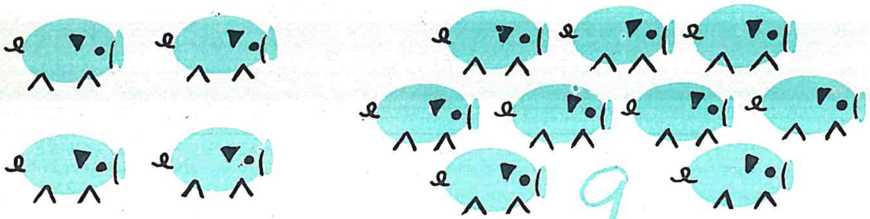
Write the numbers in the spaces:



9 + 4 = 13

$$\begin{array}{r} 9 \\ +4 \\ \hline 13 \end{array}$$

9 and 4 are 13.



4 + 9 = 13

$$\begin{array}{r} 4 \\ +9 \\ \hline 13 \end{array}$$

4 and 9 are 13.

9 and 4 are 13.
6 and 7 are 13.
4 and 9 are 13.

7 and 5 are 12.
4 and 9 are 13.
9 and 4 are 13.

9 + 4 = 13
6 + 7 = 13
9 + 4 = 13

4 + 9 = 13
4 + 9 = 13
7 + 4 = 11

9 + 4 = 4 + 9
8 + 5 = 5 + 8
7 + 6 = 6 + 7

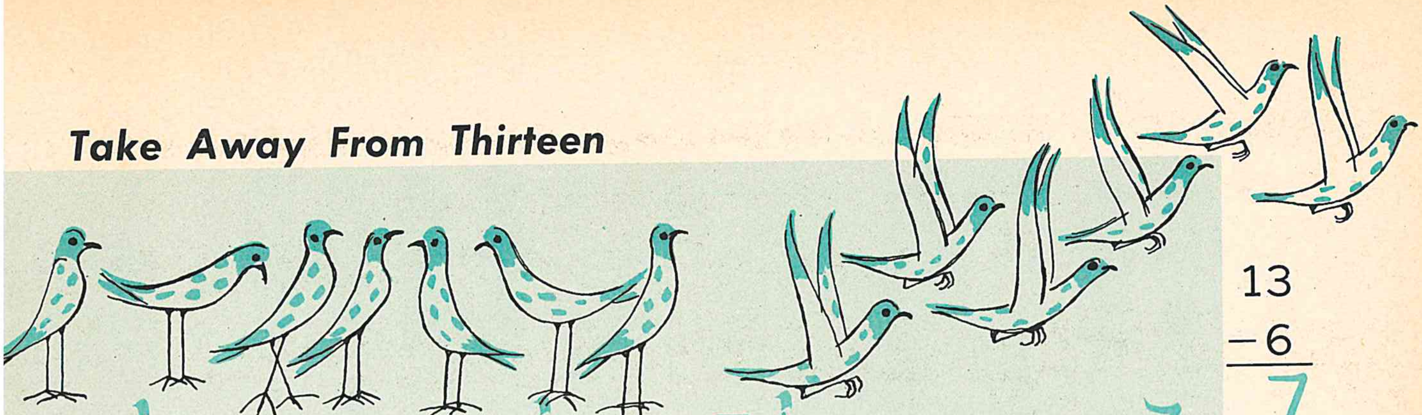
Add:

4	9	8	5	7	7	6	7	5	2
9	3	4	8	5	4	6	6	6	9
13	12	12	13	12	11	12	13	11	11
8	4	3	9	4	5	8	6	6	3
5	8	8	4	7	7	3	7	5	9
13	12	11	13	11	12	11	13	11	12

Write the missing numbers:

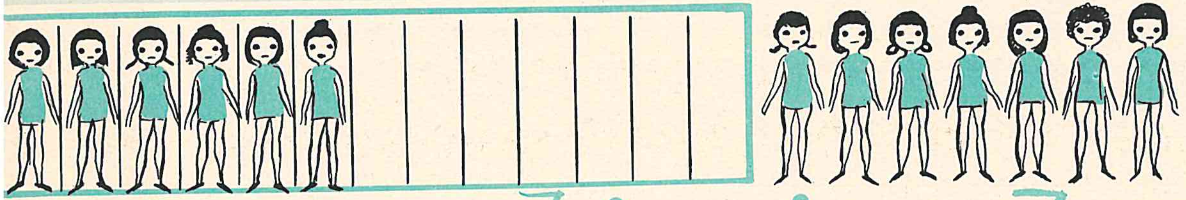
4 + 5 + 2 = 11
3 + 1 + 6 = 10
3 + 4 + 4 = 11

Take Away From Thirteen



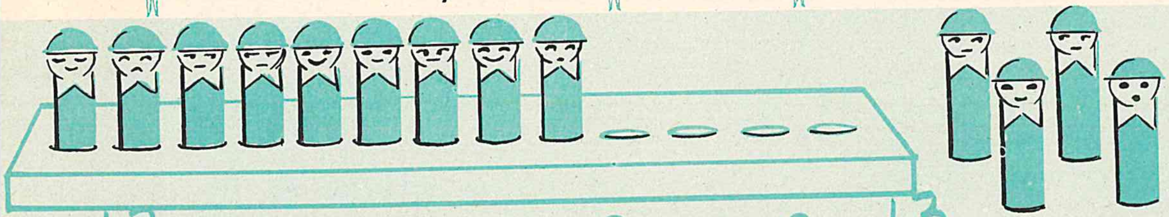
13 🐦s take away 6 🐦s is 7 🐦s. 13 − 6 = 7

13
−6
7



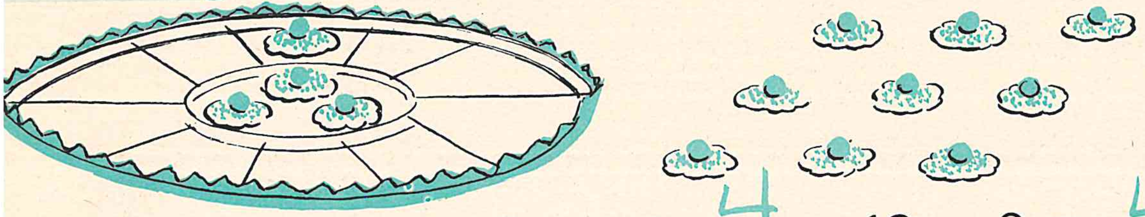
13 👧s take away 7 👧s is 6 👧s. 13 − 7 = 6

13
− 7
6



13 ▮s take away 4 ▮s is 9 ▮s. 13 − 4 = 9

13
−4
9



13 🍪s take away 9 🍪s is 4 🍪s. 13 − 9 = 4

13
−9
4

13 take away 7 is 6.

13 take away 4 is 9.

13 take away 7 is 6.

13 take away 6 is 7.

13 take away 6 is 7.

11 take away 4 is 7.

13 take away 9 is 4.

13 take away 9 is 4.

13 − 6 = 7

13 − 9 = 4

13 − 9 = 4

13 − 6 = 7

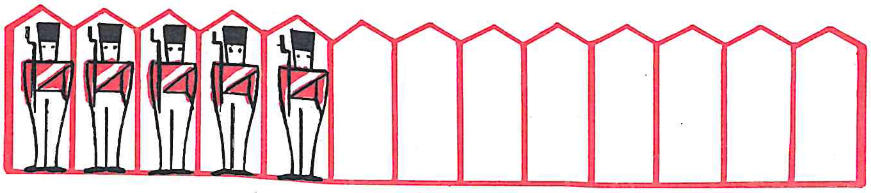
13 − 4 = 9

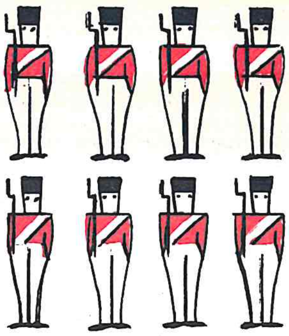
10 − 4 = 6

13 − 7 = 6

13 − 4 = 9

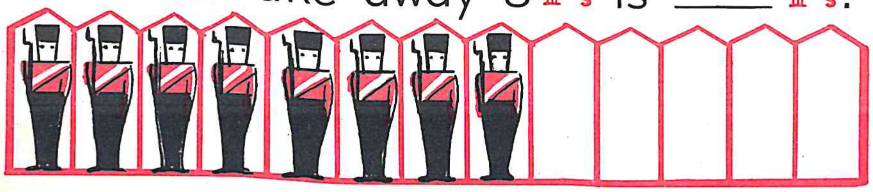
Take Away From Thirteen

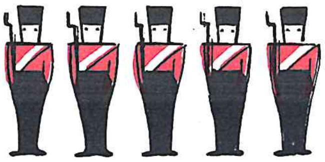




13
−8
5

13 s take away 8 s is 5 s. 13 − 8 = 5





13
− 5
8

13 s take away 5 s is 8 s. 13 − 5 = 8

12 take away 4 is 8.

13 take away 5 is 8.

13 take away 8 is 5.

13 take away 8 is 5.

12 take away 3 is 9.

13 take away 5 is 8.

13 − 5 = 8

12 − 4 = 8

12 − 7 = 5

13 − 8 = 5

13 − 5 = 8

13 − 8 = 5

Subtract:

13	11	11	10	12	13	12	13	11
6	5	8	8	3	4	8	9	7
7	6	3	2	9	9	4	4	4

10	10	12	13	12	11	11	13	12
2	6	6	8	9	2	3	5	5
8	4	6	5	3	9	8	8	7

Watch the signs:

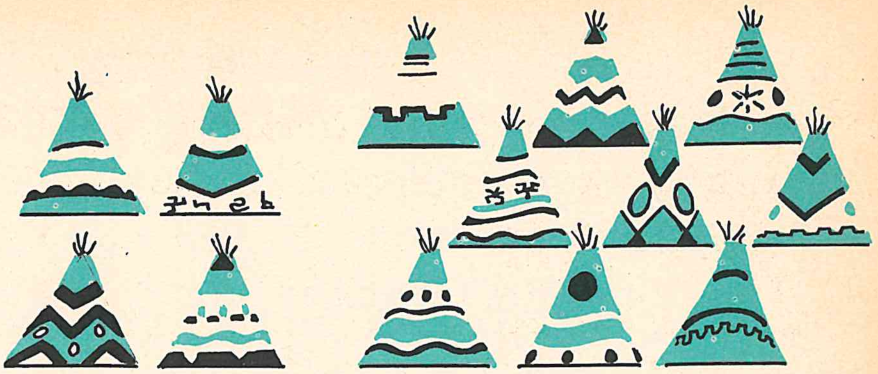
13	9	6	10	4	8	6	9	10
−7	+3	+7	−3	+3	−2	+6	+2	−7
6	12	13	7	7	6	12	11	3

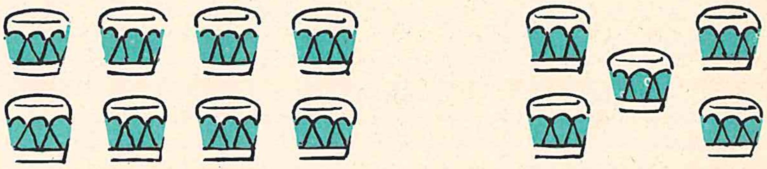
Addition and subtraction with sums and minuends through 13.

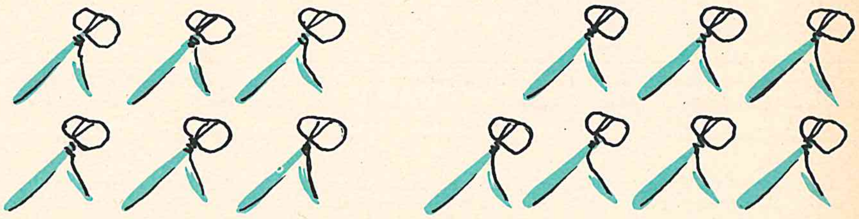
All About Thirteen

Write the answers:

4	9	13	13
+9	+4	−4	−9
13	13	9	4
8	5	13	13
+5	+8	−5	−8
13	13	8	5
6	7	13	13
+7	+6	−6	−7
13	13	7	6







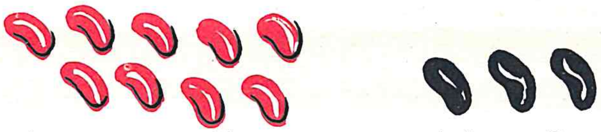
Add:

2	7	8	2	8	5	5	4	6	9
8	4	5	9	4	7	5	9	5	3
10	11	13	11	12	12	10	13	11	12
6	6	4	7	3	8	4	1	5	8
4	6	7	6	7	3	8	9	6	2
10	12	11	13	10	11	12	10	11	10
7	9	7	6	3	9	3	5	4	9
5	4	3	7	8	1	9	8	6	2
12	13	10	13	11	10	12	13	10	11

Subtract:

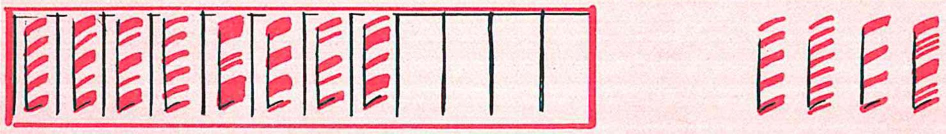
13	10	12	11	12	10	13	11	11
8	4	3	3	8	2	6	7	6
5	6	9	8	4	8	7	4	5
13	12	10	11	10	12	13	12	10
7	9	6	5	7	6	9	7	8
6	3	4	6	3	6	4	5	2

Number Stories



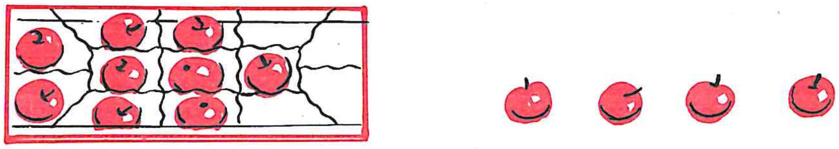
Bill had 9 jelly beans. Jim gave him 3 more. How many beans had Bill then?

$$\begin{array}{r} 9 \\ +3 \\ \hline 12 \end{array}$$



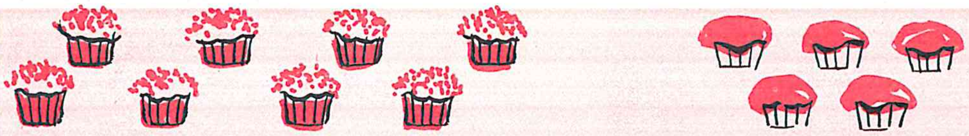
Joe bought 12 sticks of candy. He gave Bob 4 of them. How many sticks of candy did Joe have left?

$$\begin{array}{r} 12 \\ -4 \\ \hline 8 \end{array}$$



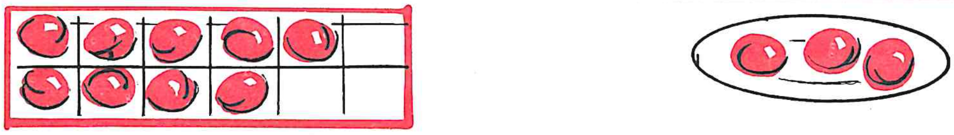
Ann had 13 apples. She gave Mary 4 of them. How many apples did Ann have left?

$$\begin{array}{r} 13 \\ -4 \\ \hline 9 \end{array}$$



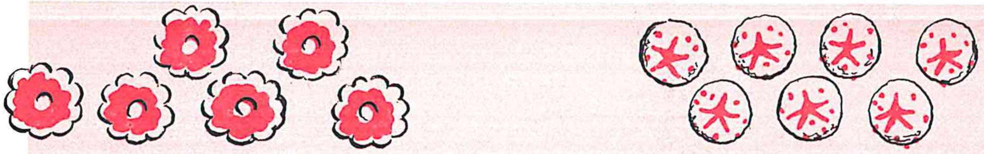
Sue had 8 cakes. She bought 5 more. How many cakes did Sue have then?

$$\begin{array}{r} 8 \\ +5 \\ \hline 13 \end{array}$$



Betty bought 12 plums. She put 3 of them on a plate. How many plums did she have left in the box?

$$\begin{array}{r} 12 \\ -3 \\ \hline 9 \end{array}$$



Joan had 6 cookies. She bought 7 more. How many cookies did she have then?

$$\begin{array}{r} 6 \\ +7 \\ \hline 13 \end{array}$$

Students may be encouraged to make up their own number stories for others in the class to work.

How Well Can You Work?

Add:

6	4	3	7	6	8	6	9	4	8
1	5	3	1	3	1	4	3	3	5
7	9	6	8	9	9	10	12	7	13

5	2	7	4	5	6	5	6	8	4
5	6	2	4	2	5	3	7	3	2
10	8	9	8	7	11	8	13	11	6

Subtract:

9	8	11	13	7	6	8	10	9	8
6	4	3	9	5	4	2	5	1	3
3	4	8	4	2	2	6	5	8	5

9	12	7	11	6	8	9	10	13	12
5	7	3	2	5	1	4	7	8	3
4	5	4	9	1	7	5	3	5	9

Write the missing numbers:

4 + 4 = 8
4 + 5 = 9
4 + 6 = 10
4 + 7 = 11
4 + 8 = 12
4 + 9 = 13
5 + 8 = 13
4 + 9 = 13
9 + 4 = 13

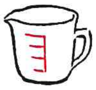
4 + 9 = 13
5 + 8 = 13
6 + 7 = 13
7 + 6 = 13
8 + 5 = 13
9 + 4 = 13
13 − 5 = 8
6 + 7 = 13
8 + 5 = 13

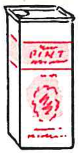
13 − 4 = 9
13 − 5 = 8
13 − 6 = 7
13 − 7 = 6
13 − 8 = 5
13 − 9 = 4
13 − 9 = 4
13 − 7 = 6
13 − 5 = 8

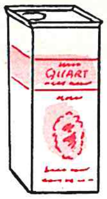
13 − 9 = 4
12 − 8 = 4
11 − 7 = 4
10 − 6 = 4
9 − 5 = 4
8 − 4 = 4
13 − 8 = 5
13 − 6 = 7
13 − 4 = 9

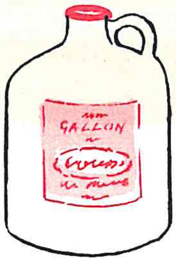
The last half of the page shows the results of increasing or decreasing in sequence the addends, subtrahends, and minuends of facts children have learned.

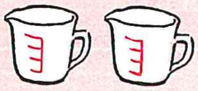
Cups, Pints, Quarts, and Gallons

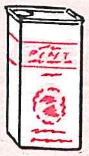

1 cup

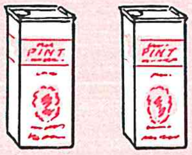

1 pint

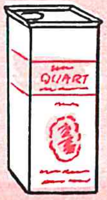

1 quart


1 gallon

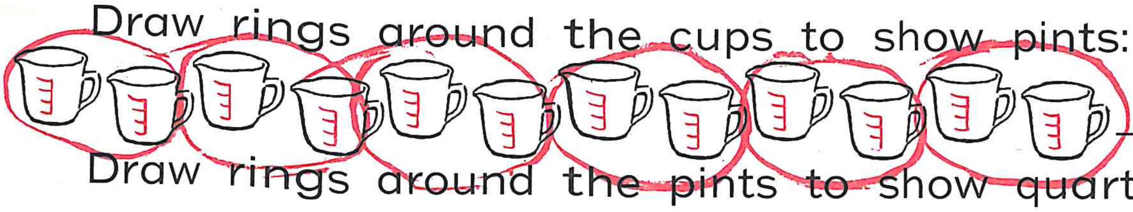

2 cups =


1 pint

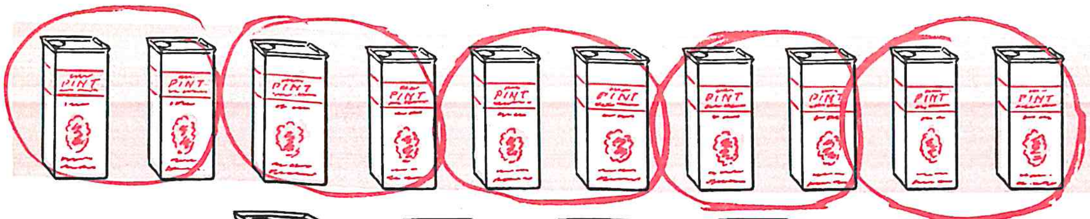

2 pints = 1 quart

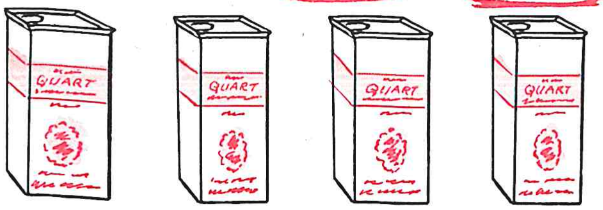


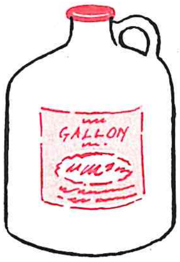
Draw rings around the cups to show pints:


6 pints

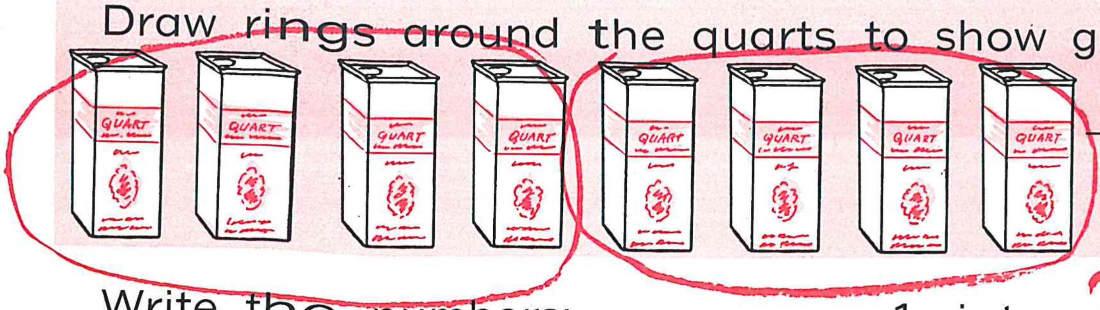
Draw rings around the pints to show quarts:


5 quarts




4 quarts = 1 gallon

Draw rings around the quarts to show gallons:


2 gallons

Write the numbers:

1 pint = 2 cups

1 quart = 2 pints

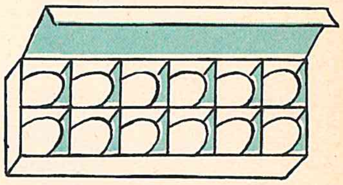
1 gallon = 4 quarts

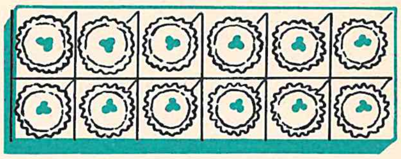
The teacher may demonstrate by pouring water from cups into pints, from pints into quarts, and from quarts into gallons, etc.

Dozen and half dozen.

How Many in a Dozen?

Write the number that tells how many things there are in each picture:

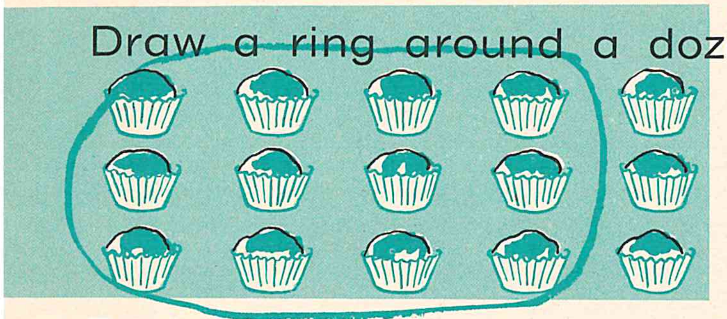


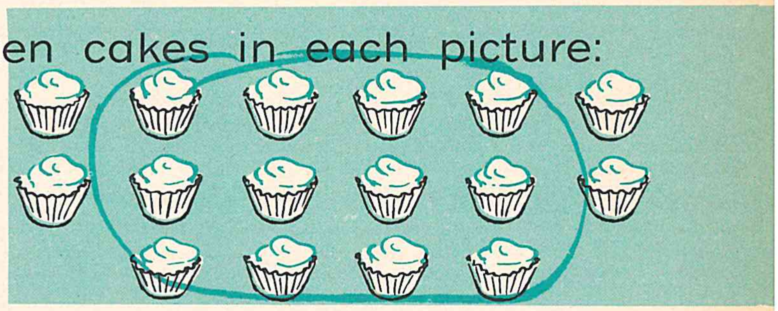


12 eggs are 1 dozen eggs. 12

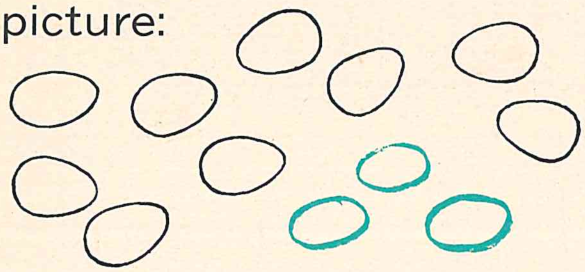
12 cakes are 1 dozen cakes. 12

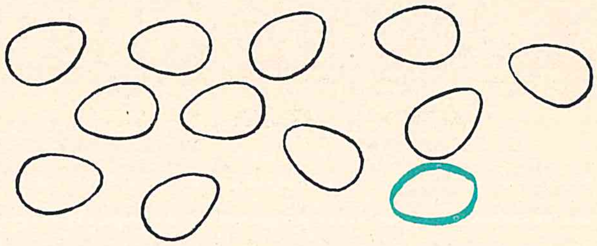
Draw a ring around a dozen cakes in each picture:



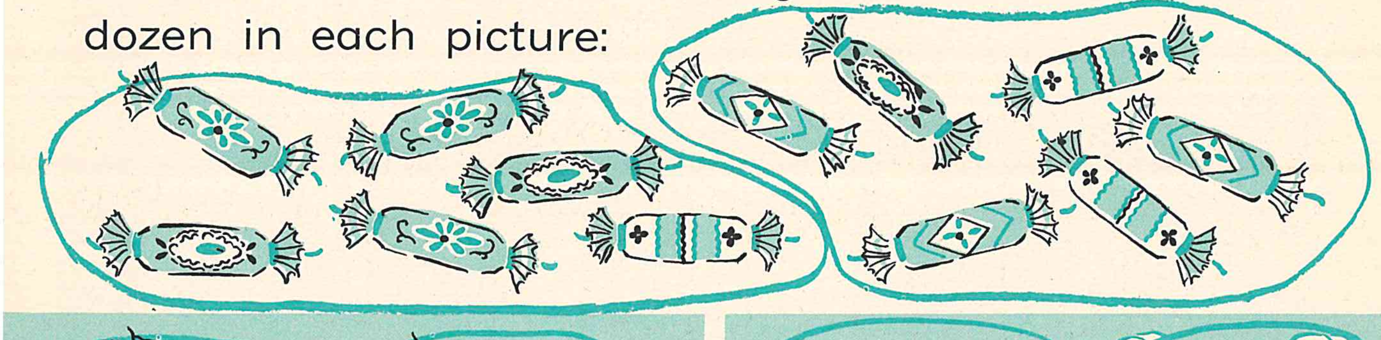


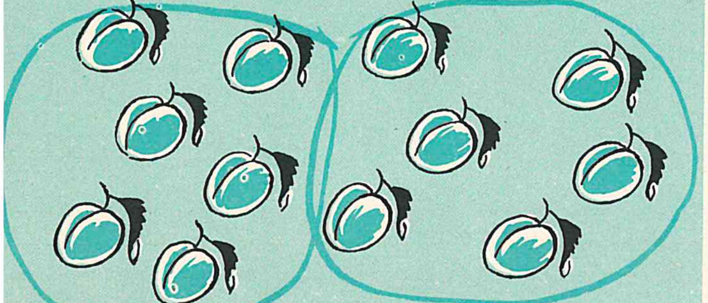
Draw enough more eggs to make a dozen in each picture:

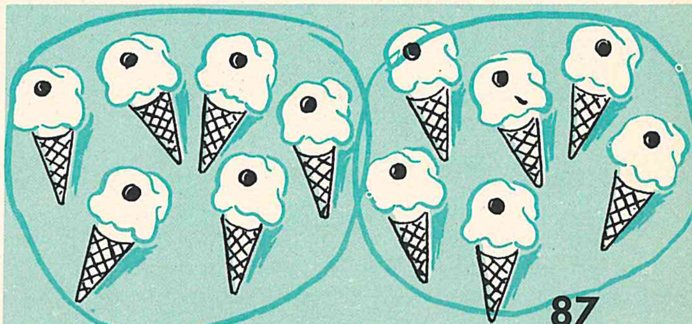




Six is a half dozen. Draw rings around each half dozen in each picture:



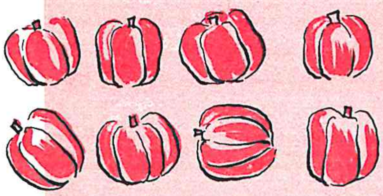


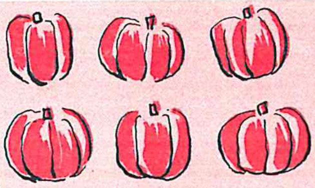


You may demonstrate with egg cartons, using marbles or other objects.

Adding to Make Fourteen

Write the numbers in the spaces:

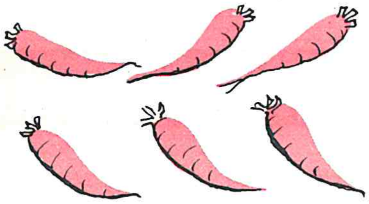


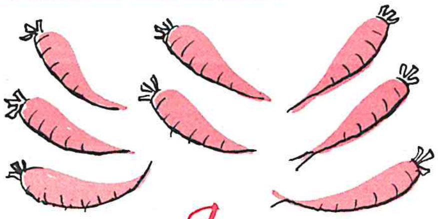


8 and 6 are 14.

8 + 6 = 14

$$\begin{array}{r} 8 \\ +6 \\ \hline 14 \end{array}$$

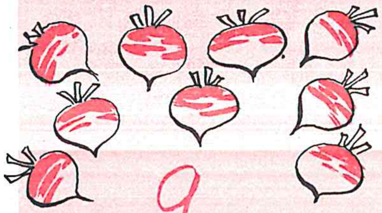


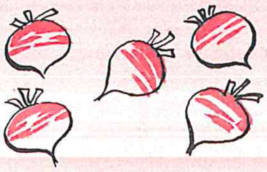


6 and 8 are 14.

6 + 8 = 14

$$\begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array}$$

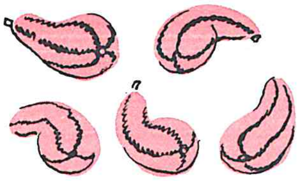


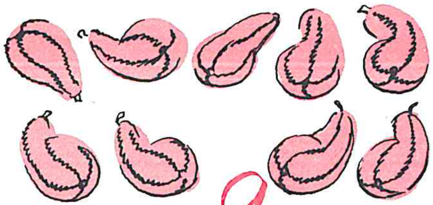


9 and 5 are 14.

9 + 5 = 14

$$\begin{array}{r} 9 \\ +5 \\ \hline 14 \end{array}$$





5 and 9 are 14.

5 + 9 = 14

$$\begin{array}{r} 5 \\ +9 \\ \hline 14 \end{array}$$

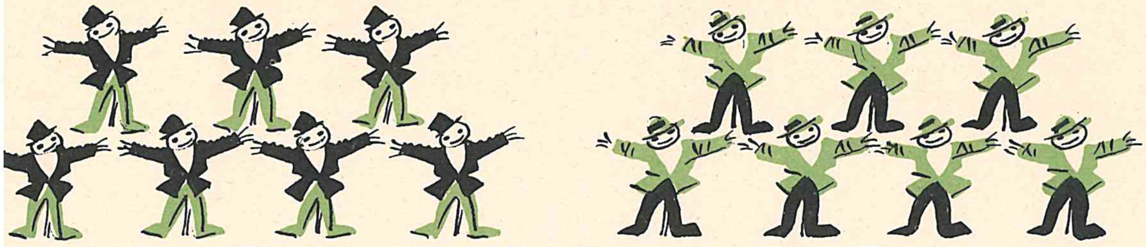
6 and 8 are 14.
5 and 7 are 12.
9 and 5 are 14.
5 + 9 = 14
8 + 6 = 14
5 + 9 = 14

8 and 6 are 14.
9 and 5 are 14.
6 and 8 are 14.
8 + 6 = 14
5 + 6 = 11
9 + 5 = 14

5 and 9 are 14.
8 and 6 are 14.
5 and 9 are 14.
6 + 8 = 14
9 + 5 = 14
6 + 8 = 14

More Adding to Make Fourteen

Write the numbers in the spaces:



$$\begin{array}{r} 7 \\ +7 \\ \hline 14 \end{array}$$

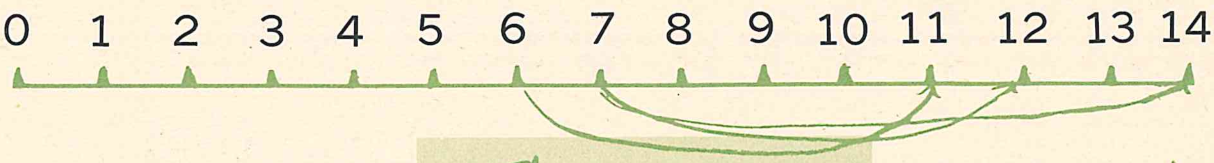
7 and 7 are 14.

Two 7's are 14.

7 and 7 are 14.
7 + 7 = 14

6 and 5 are 11.
7 + 7 = 14

7 and 7 are 14.
7 + 5 = 12



7 + 7 = 14
9 + 5 = 14

8 + 6 = 14

5 + 9 = 14
6 + 8 = 14

Add:

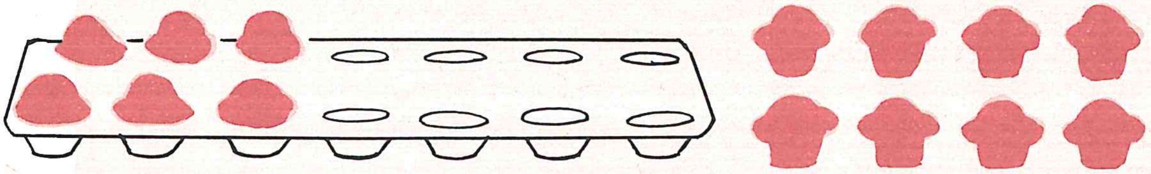
6	7	3	7	6	9	5	8	6	9
5	7	8	5	8	3	3	6	4	5
11	14	11	12	14	12	8	14	10	14

8	3	5	3	4	5	6	2	9	5
5	7	9	4	7	8	7	7	4	8
13	10	14	7	11	13	13	9	13	13

2	1	4	1	4	5	3	4	5	4
4	2	5	6	5	4	2	4	3	4
3	7	3	3	5	2	4	5	2	1
9	10	12	10	14	11	9	13	10	9

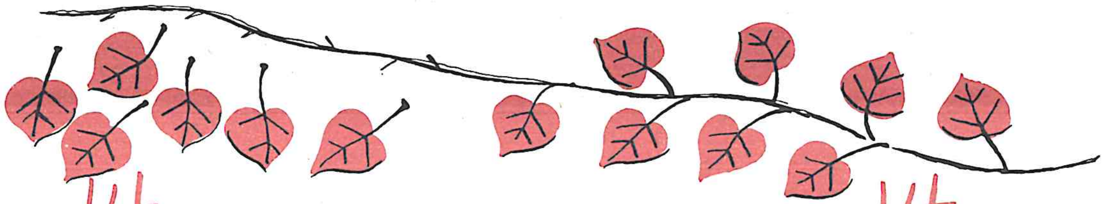
Subtract From Fourteen

Write the numbers in the spaces:



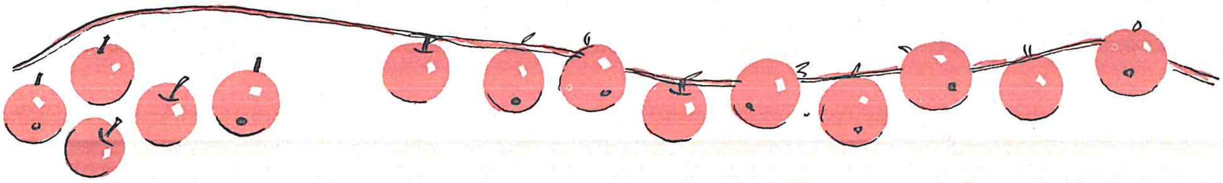
14 ●s take away 8 ●s is 6 ●s. 14 − 8 = 6

$$\begin{array}{r}14\\-8\\\hline 6\end{array}$$



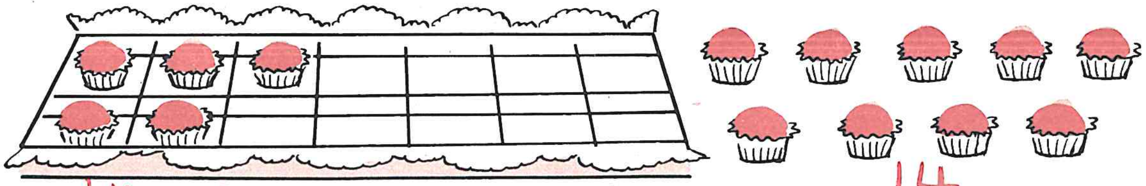
14 ●s take away 6 ●s is 8 ●s. 14 − 6 = 8

$$\begin{array}{r}14\\-6\\\hline 8\end{array}$$



14 ●s take away 5 ●s is 9 ●s. 14 − 5 = 9

$$\begin{array}{r}14\\-5\\\hline 9\end{array}$$



14 ●s take away 9 ●s is 5 ●s. 14 − 9 = 5

$$\begin{array}{r}14\\-9\\\hline 5\end{array}$$

14 take away 6 is 8.

14 take away 5 is 9.

14 take away 9 is 5.

14 take away 9 is 5.

14 take away 8 is 6.

14 take away 5 is 9.

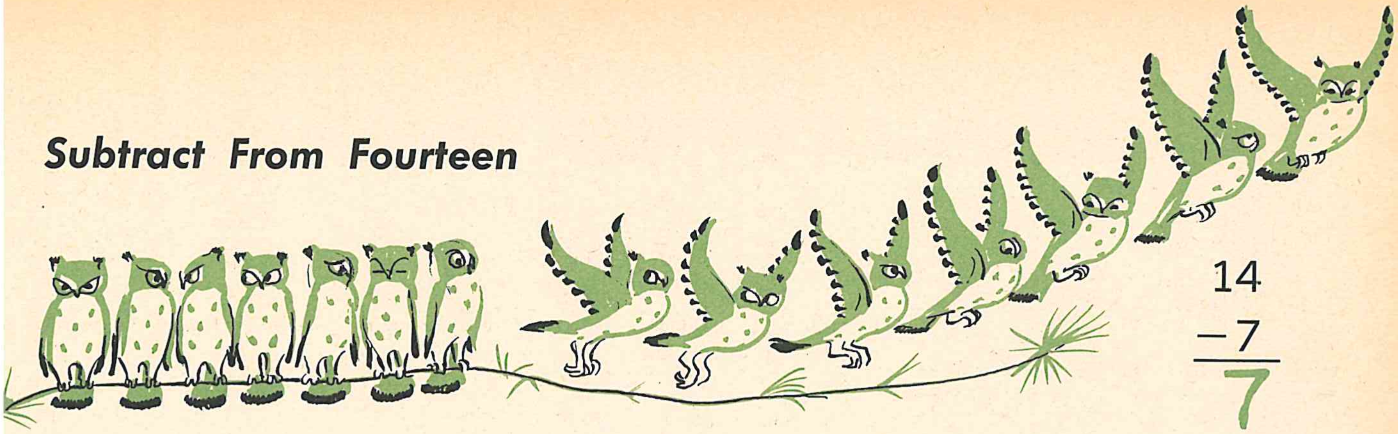
11 take away 3 is 8.

14 take away 8 is 6.

14 − 8 = 6   14 − 6 = 8   14 − 5 = 9   14 − 6 = 8

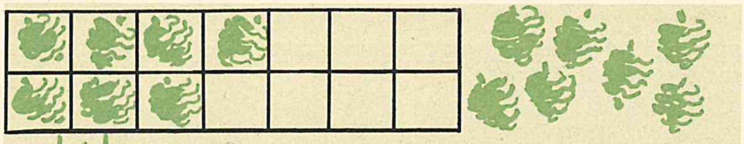
13 − 4 = 9   14 − 8 = 6   14 − 9 = 5   14 − 9 = 5

Subtract From Fourteen

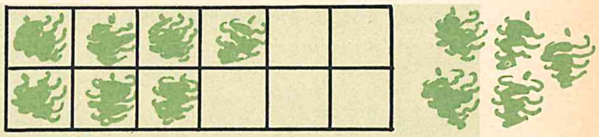


14
−7
7

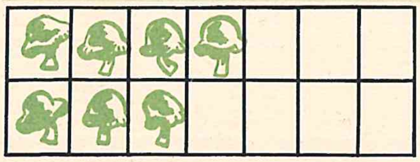
14 🦉s take away 7 🦉s is 7 🦉s. 14 − 7 = 7



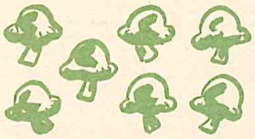
14 take away 7 is 7.

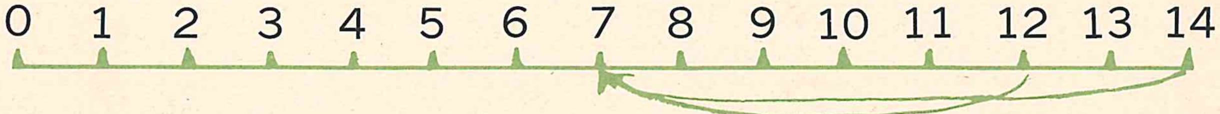


12 take away 5 is 7.



14 take away 7 = 7.





14 − 7 = 7
14 − 5 = 9

14 − 8 = 6
14 − 9 = 5

14 − 6 = 8
14 − 7 = 7

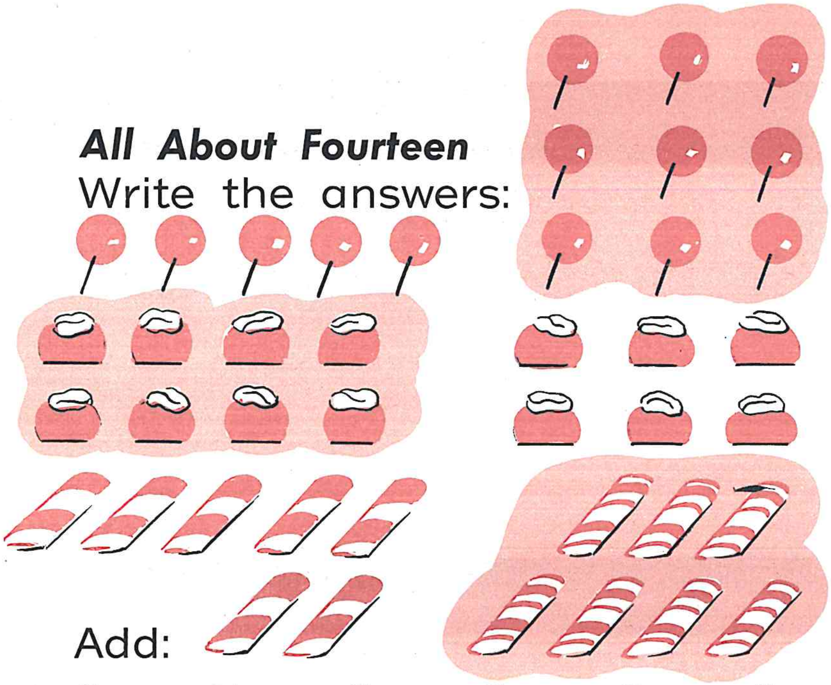
14 − 7 = 7
11 − 6 = 5

Subtract:

12	14	13	14	11	14	10	14	14
3	7	6	5	3	8	7	9	6
9	7	7	9	8	6	3	5	8
11	12	14	13	14	13	12	13	14
5	7	6	9	8	7	9	8	9
6	5	8	4	6	6	3	5	5
11	10	8	9	13	12	11	10	9
7	4	3	7	5	6	6	6	8
4	6	5	2	8	6	5	4	1

All About Fourteen

Write the answers:



9	5	14	14
+5	+9	−5	−9
14	14	9	5
8	6	14	14
+6	+8	−6	−8
14	14	8	6
		7	14
		+7	−7
		14	7

Add:

6	5	3	8	2	9	4	7	8	2
7	5	9	5	8	2	9	7	4	9
13	10	12	13	10	11	13	14	12	11
5	4	3	7	7	8	9	5	9	5
8	6	8	3	5	6	4	6	1	9
13	10	11	10	12	14	13	11	10	14
8	6	9	6	7	6	5	7	8	9
2	6	5	4	6	8	7	4	3	3
10	12	14	10	13	14	12	11	11	12

Subtract:

10	12	14	12	10	12	13	11	10
5	8	7	3	8	6	7	9	3
5	4	7	9	2	6	6	2	7
14	11	10	13	11	10	13	14	12
8	3	4	8	6	9	5	6	7
6	8	6	5	5	1	8	8	5
14	11	10	11	13	10	14	12	13
9	7	2	4	4	7	5	4	9
5	4	8	7	9	3	9	8	4

Number Stories

Sue put 7 cups on the shelf. Bob put 6 cups there. How many cups did Sue and Bob put on the shelf?

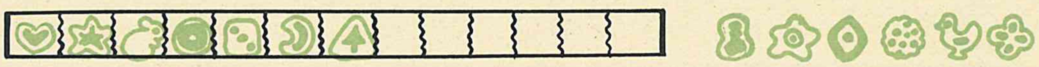
7
+6
13

Sue and Bob picked 14 flowers. Sue picked 7 flowers. How many did Bob pick?

14
-7
7

Sue had 5 apples. Bob had 8 apples. How many apples did Bob and Sue have?

5
+8
13



There were 13 cookies in a box. Sue and Bob took 6. How many cookies were left in the box?

13
-6
7

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

What makes 14?

6 + 8 = 14
9 + 5 = 14
7 + 7 = 14
5 + 9 = 14
8 + 6 = 14

What makes 11?

6 + 5 = 11
2 + 9 = 11
4 + 7 = 11
8 + 3 = 11
5 + 6 = 11

What makes 13?

6 + 7 = 13
8 + 5 = 13
4 + 9 = 13
7 + 6 = 13
9 + 4 = 13

Watch the signs:

14	8	13	3	5	14	13	9	12
−6	+5	−4	+9	+9	−5	−9	+4	−9
8	13	9	12	14	9	4	13	3

Practice in working story problems. Adding and subtracting numbers with sums and minuends through 14. Using a number line to check answers.

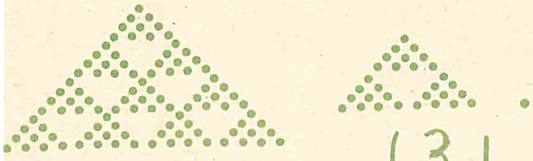
Let's Add and Subtract

Add:		9	6	6	2	1	8	6	7
		1	5	3	8	4	5	6	2
		10	11	9	10	5	13	12	9
2	5	8	8	5	5	2	4	1	7
2	6	2	6	4	7	3	9	9	4
4	11	10	14	9	12	5	13	10	11
1	7	6	4	4	9	3	8	4	7
1	5	7	7	5	5	2	3	8	3
2	12	13	11	9	14	5	11	12	10
8	3	5	2	3	7	8	9	3	6
4	8	8	7	7	7	2	3	9	4
12	11	13	9	10	14	10	12	12	10
2	7	1	9	4	4	8	3	9	2
9	6	8	3	6	0	6	6	4	1
11	13	9	12	10	4	14	9	13	3
Subtract:		14	11	14	13	14	11	11	11
		9	6	6	6	7	9	4	3
		5	5	8	7	7	2	7	8
4	12	13	11	9	11	7	10	10	13
3	8	9	7	0	5	7	8	1	4
1	4	4	4	9	6	0	2	9	9
6	14	10	13	11	10	14	8	8	12
4	5	3	8	8	7	8	4	6	3
2	9	7	5	3	3	6	4	2	9
11	5	12	12	10	12	12	9	13	12
2	5	4	7	5	9	5	3	7	6
9	0	8	5	5	3	7	6	6	6

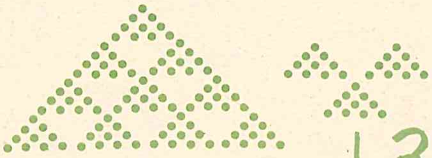
To review sums and minuends through 14.

The Things You Know

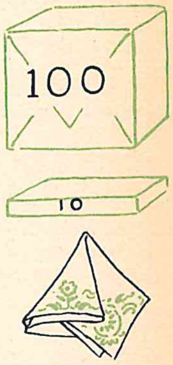
Write the numbers that tell how many:



131



130



184 is 1 hundred, 8 tens, and 4 ones.
245 is 2 hundreds, 4 tens, and 5 ones.
460 is 4 hundreds, 6 tens, and 0 ones.
508 is 5 hundreds, 0 tens, and 8 ones.
900 is 9 hundreds, 0 tens, and 0 ones.

Write the numbers:

4 + 9 = 13
13 − 8 = 5
14 − 8 = 6

9 + 5 = 14
7 + 6 = 13
7 + 7 = 14

14 − 9 = 5
8 + 5 = 13
13 − 7 = 6

13 − 6 = 7
8 + 6 = 14
6 + 7 = 13

There were 14 problems on an arithmetic test. Bob missed 5. How many did he get right? 9

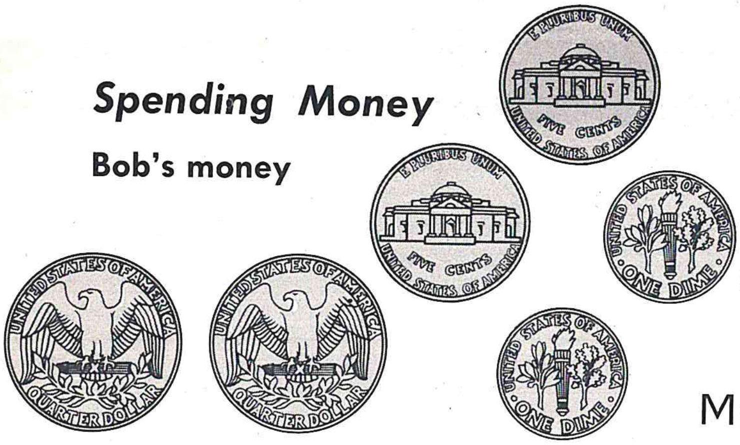
$$\begin{array}{r} 14 \\ -5 \\ \hline 9 \end{array}$$

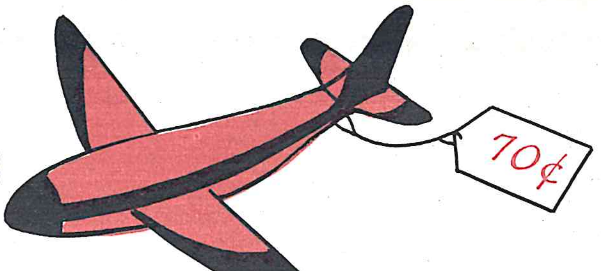
Work the problems. Watch the signs!

9	14	5	4	14	13	10	4	3
+4	−6	+8	+4	−7	−4	−7	+5	−2
13	8	13	8	7	9	3	9	1
6	13	6	8	9	5	8	13	7
+3	−5	+8	−3	+1	+9	−8	−9	+0
9	8	14	5	10	14	0	4	7

Spending Money

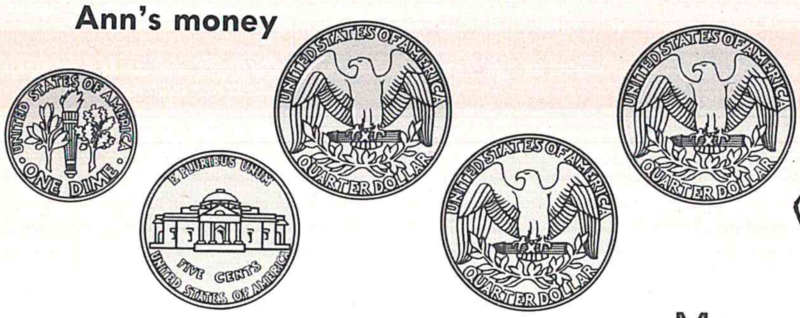
Bob's money

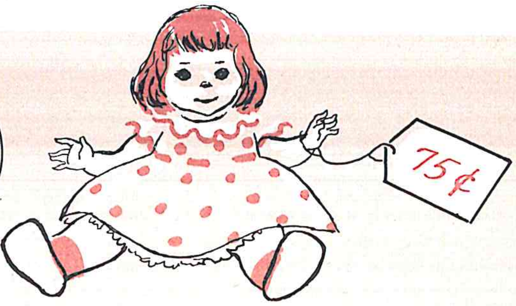




Money Bob had left: 10¢

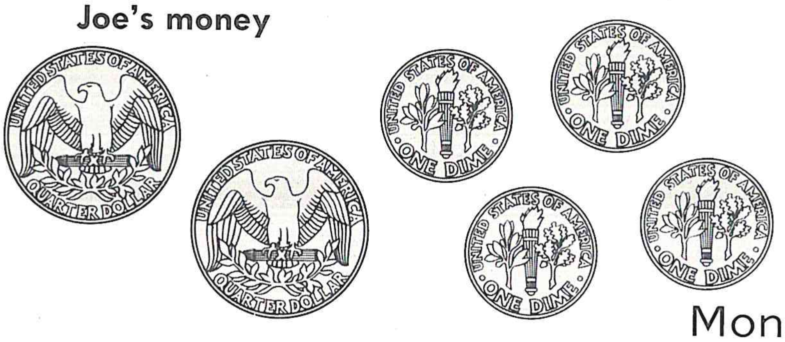
Ann's money

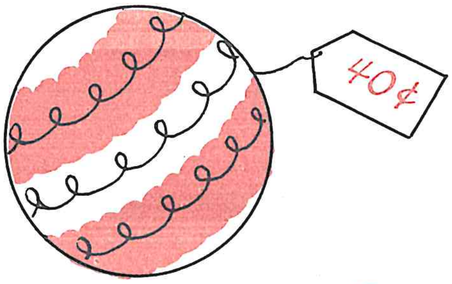




Money Ann had left: 15¢

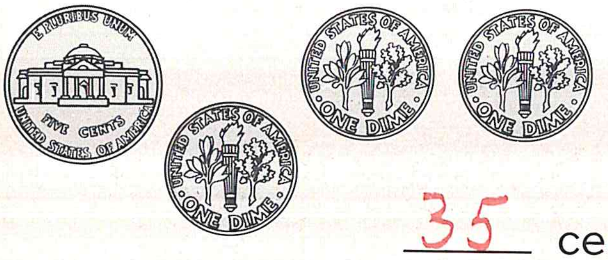
Joe's money



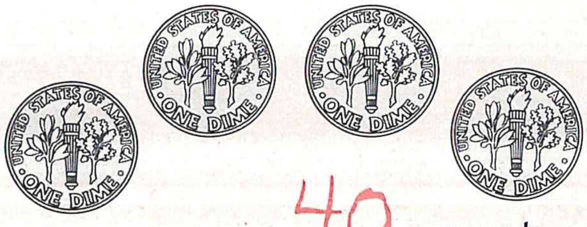


Money Joe had left: 50¢

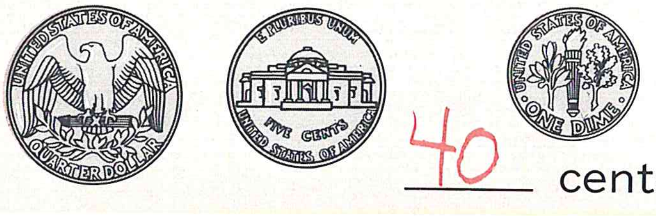
How much money in each picture?



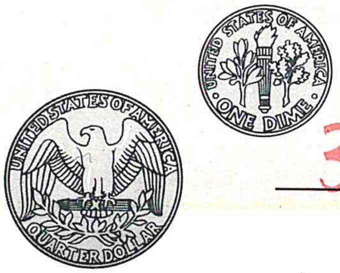
35 cents



40 cents



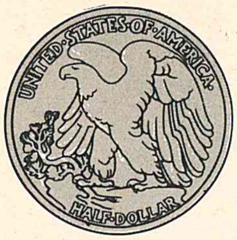
40 cents



35 cents

Making change.

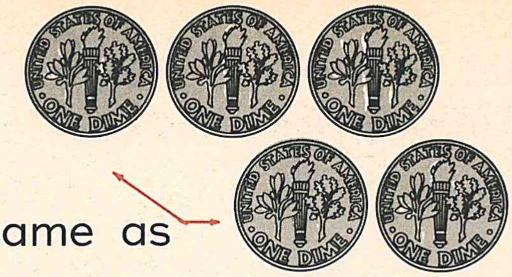
How Much Is a Dollar?



Half dollar

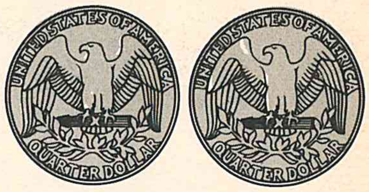
50 cents

50¢



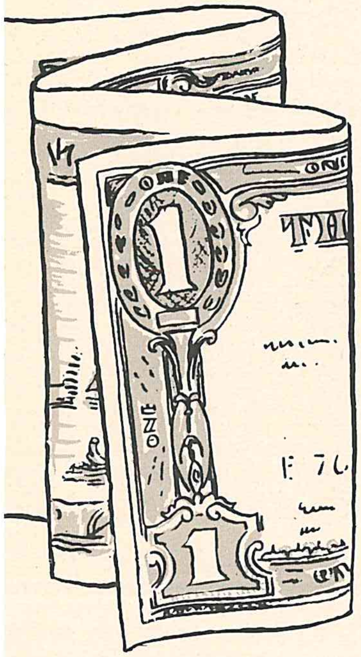
A half dollar is the same as

5 dimes = a half dollar



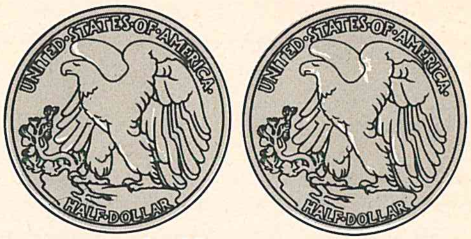
A half dollar is the same as

2 quarters = a half dollar



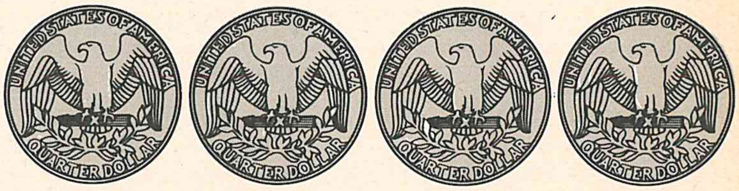
Dollar

$1.00



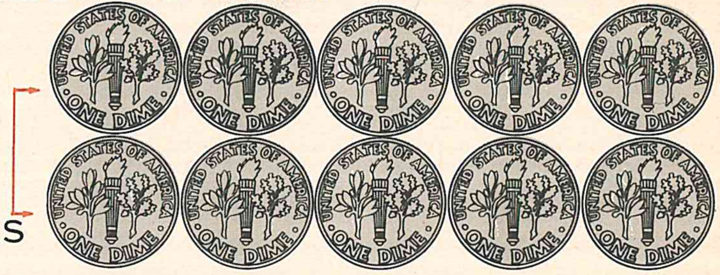
A dollar is the same as

2 half dollars = a dollar



A dollar is the same as

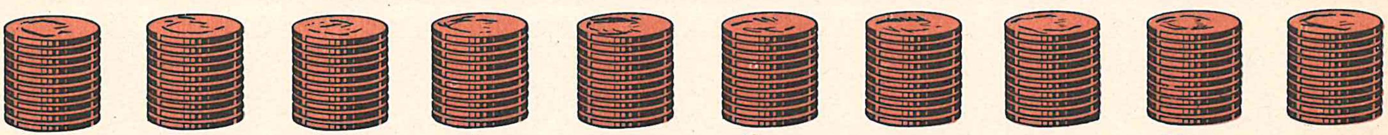
4 quarters = a dollar



A dollar is the same as

10 dimes = a dollar

A dollar is the same as all these pennies:



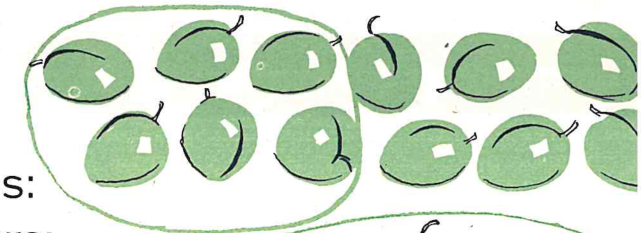
10 20 30 40 50 60 70 80 90 100

A dollar can be written $1.00. Write each of these with a dollar sign, point, and two zeros:

4 dollars $4.00 7 dollars $7.00 2 dollars $2.00

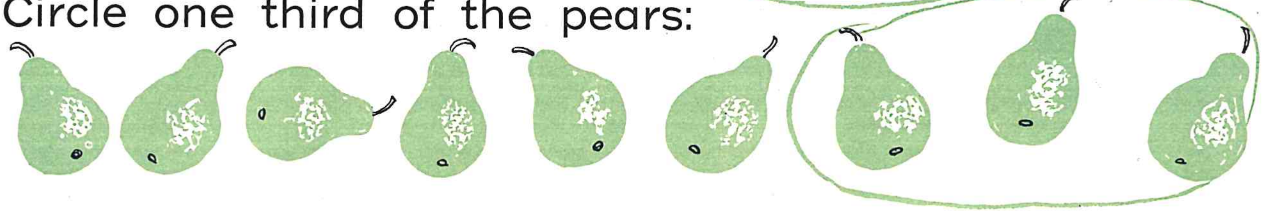
Half dollar and the dollar. Writing the dollar with the dollar sign.

Making Sure You Know

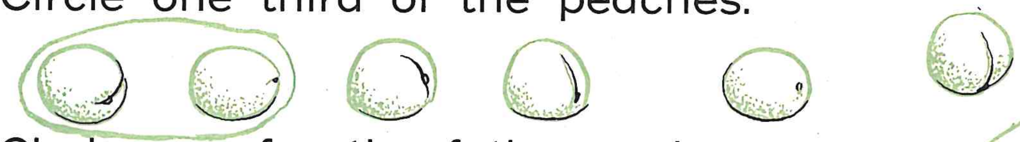


Circle one half of the plums:

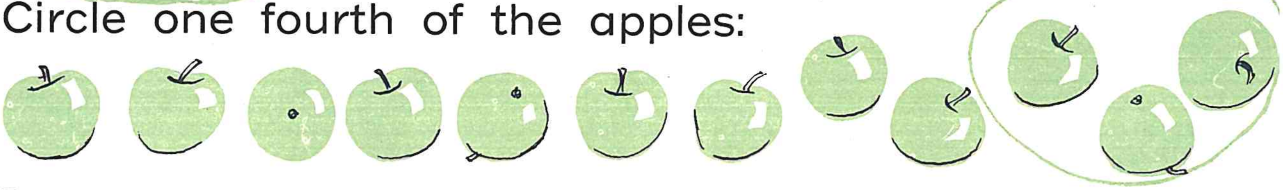
Circle one third of the pears:



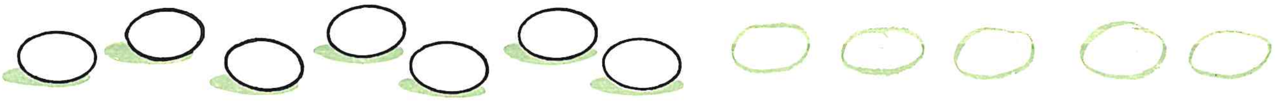
Circle one third of the peaches:



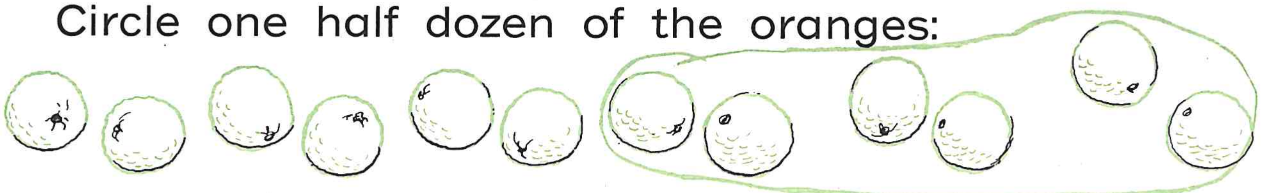
Circle one fourth of the apples:



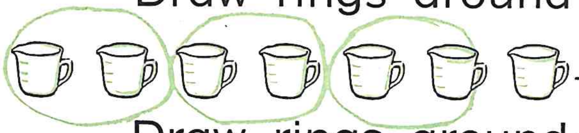
Draw enough more eggs to make 1 dozen:



Circle one half dozen of the oranges:

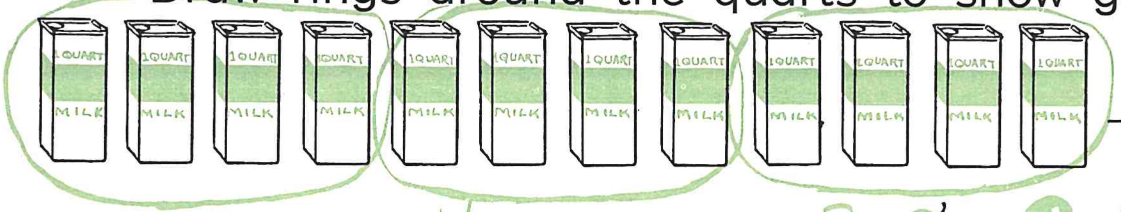


Draw rings around the cups to show pints:

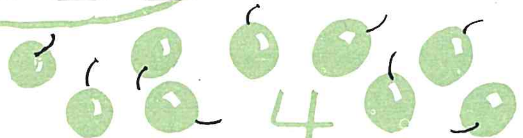


3 pints and 1 cup left over.

Draw rings around the quarts to show gallons:



3 gallons



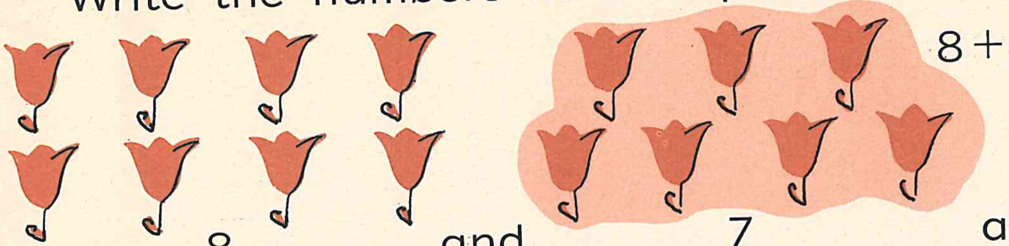
Two 2's are 4. Two 1's are 2.

Two 6's are 12. Two 4's are 8. There are 4 twos.

Two 5's are 10. Two 3's are 6. There is 1 left over.

Adding to Make Fifteen

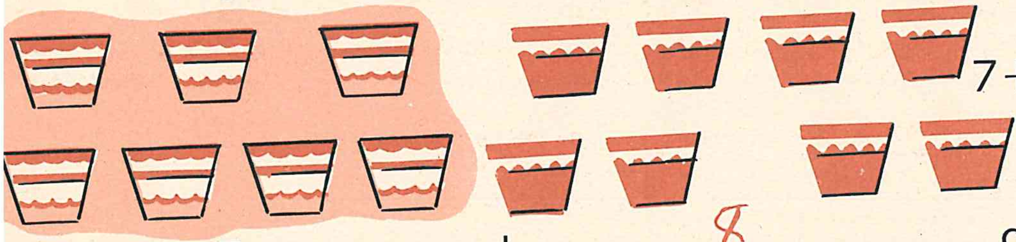
Write the numbers in the spaces:



8 + 7 = 15

8
+7
15

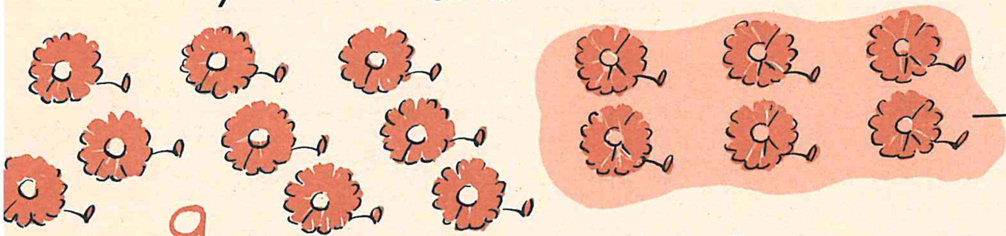
8 and 7 are 15.



7 + 8 = 15

7
+8
15

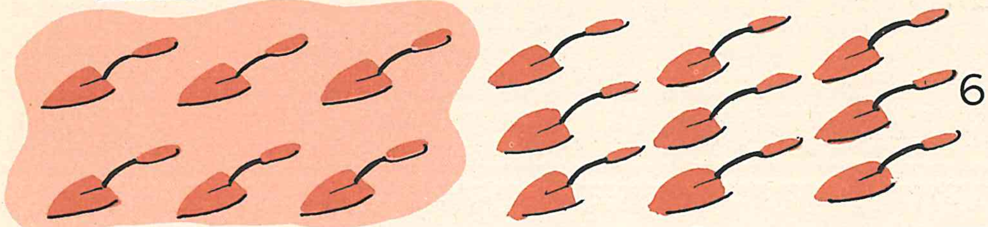
7 and 8 are 15.



9 + 6 = 15

9
+6
15

9 and 6 are 15.



6 + 9 = 15

6
+9
15

6 and 9 are 15.

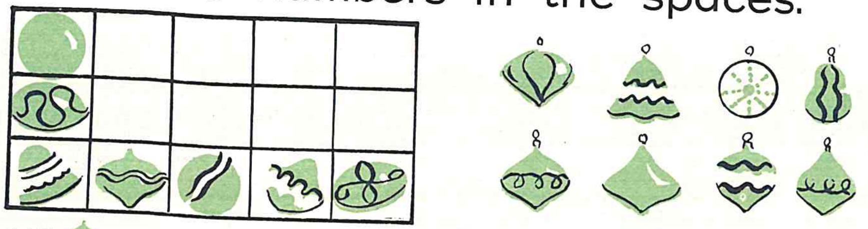
7 and 8 are 15.
6 and 9 are 15.
7 and 8 are 15.
6 + 9 = 15
8 + 7 = 15
6 + 9 = 15

8 and 7 are 15.
9 and 6 are 15.
8 and 7 are 15.
8 + 7 = 15
9 + 6 = 15
7 + 8 = 15

9 and 6 are 15.
4 and 7 are 11.
6 and 9 are 15.
4 + 6 = 10
9 + 6 = 15
7 + 8 = 15

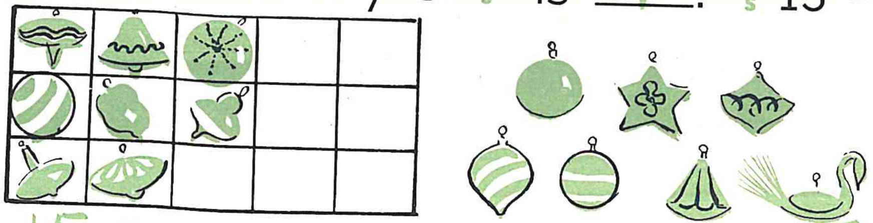
Subtract From Fifteen

Write the numbers in the spaces:



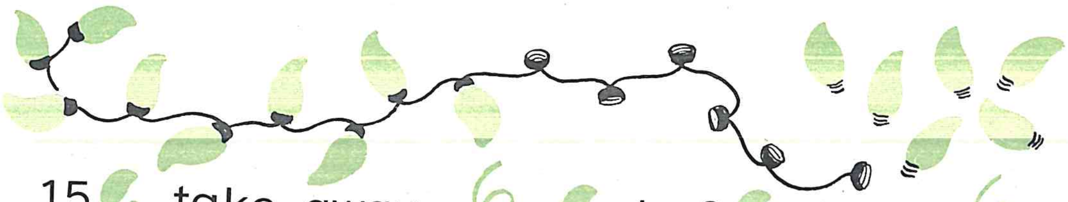
15
−8
7

15 ●s take away 8 ●s is 7 ●s. 15 − 8 = 7



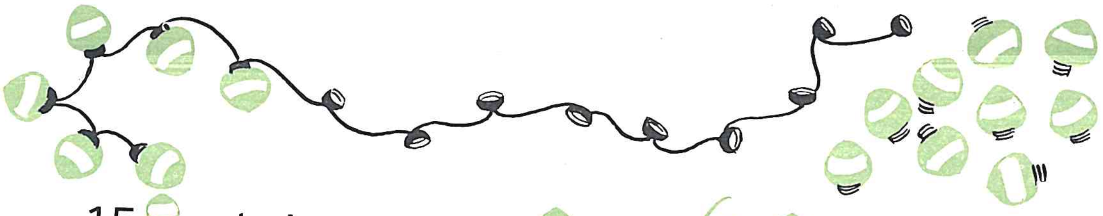
15
−7
8

15 ●s take away 7 ●s is 8 ●s. 15 − 7 = 8



15
−6
9

15 ●s take away 6 ●s is 9 ●s. 15 − 6 = 9



15
−9
6

15 ●s take away 9 ●s is 6 ●s. 15 − 9 = 6

15 take away 8 is 7.
15 take away 7 is 8.
15 take away 9 is 6.
15 take away 9 is 6.
13 take away 7 is 6.
15 take away 8 is 7.
15 take away 6 is 9.
15 take away 7 is 8.

15 − 7 = 8 15 − 9 = 6 15 − 8 = 7 15 − 6 = 9

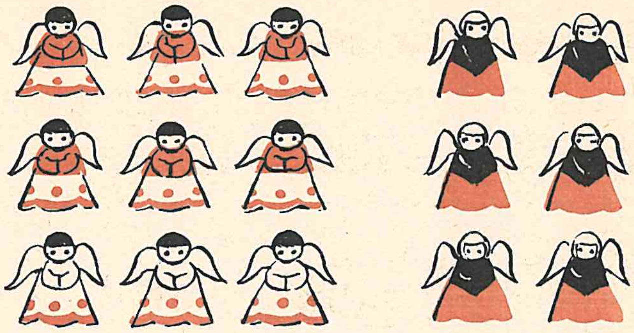
15 − 8 = 7 13 − 7 = 6 15 − 9 = 6 15 − 6 = 9

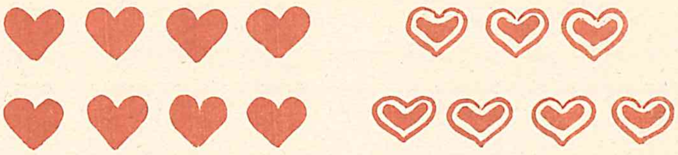
All About Fifteen

Write the answers:

6	9	15	15
+9	+6	−6	−9
15	15	9	6

7	8	15	15
+8	+7	−7	−8
15	15	8	7





Add:

6	4	5	8	5	2	3	7	4	9	3
4	4	7	1	9	2	7	6	3	2	3
10	8	12	9	14	4	10	13	7	11	6

8	6	3	2	8	7	4	4	7	7	2
5	8	5	8	3	2	6	1	8	4	4
13	14	8	10	11	9	10	5	15	11	6

7	6	9	1	4	6	9	3	8	1	5
7	3	6	7	8	1	4	2	7	3	2
14	9	15	8	12	7	13	5	15	4	7

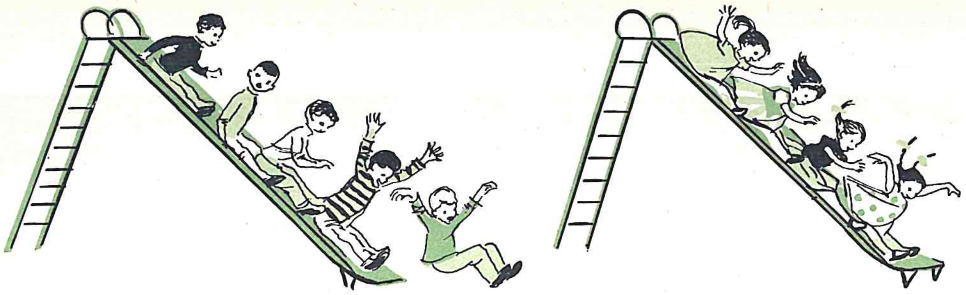
Subtract:

15	10	13	9	14	11	7	2	4	12
9	4	6	5	9	6	4	2	3	8
6	6	7	4	5	5	3	0	1	4

14	10	15	7	11	9	13	12	8	8
8	3	7	5	7	6	5	7	2	3
6	7	8	2	4	3	8	5	6	5

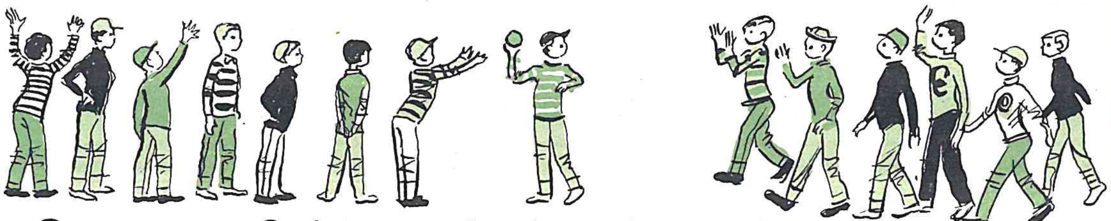
6	11	14	9	13	7	15	5	15	10
2	8	7	7	4	6	8	4	6	2
4	3	7	2	9	1	7	1	9	8

Number Stories



There were 5 boys and 4 girls playing on the slides. How many boys and girls were on the slides?

$$\begin{array}{r}5\\+4\\\hline 9\end{array}$$

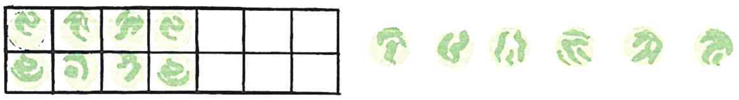


Sue saw 8 boys playing ball. 6 more boys came to play. How many boys were playing ball?

$$\begin{array}{r}8\\+6\\\hline 14\end{array}$$

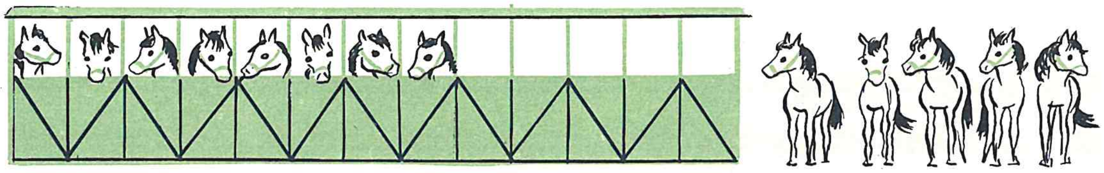
Bill and Bob were playing marbles. Bill had 7 marbles and Bob had 8 marbles. How many marbles did both boys have?

$$\begin{array}{r}7\\+8\\\hline 15\end{array}$$



Pat had 14 marbles. He lost 6 of them. How many marbles did he have left?

$$\begin{array}{r}14\\-6\\\hline 8\end{array}$$



There were 13 ponies in the barn. 5 of them went into the field. How many ponies were left in the barn?

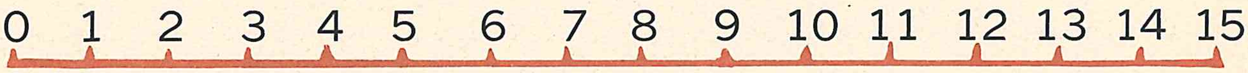
$$\begin{array}{r}13\\-5\\\hline 8\end{array}$$

Tom had 13 marbles. He gave 6 to Jack. How many marbles did Tom have left?

$$\begin{array}{r}13\\-6\\\hline 7\end{array}$$

How Fast Are You?

Use the number line to help find the answers:



Add:

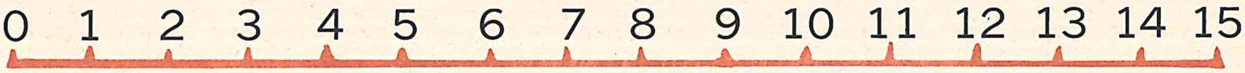
6	9	8	3	7	4	6	7	3	8
9	2	6	9	7	9	5	6	8	7
15	11	14	12	14	13	11	13	11	15
9	6	4	9	5	7	6	7	8	9
4	7	8	6	7	4	8	5	3	5
13	13	12	15	12	11	14	12	11	14
8	5	4	5	8	9	4	7	5	2
5	9	7	6	4	3	7	8	8	9
13	14	11	11	12	12	11	15	13	11

Write the missing numbers:

7 + 8 = 15 8 + 7 = 15 9 + 5 = 14 7 + 7 = 14

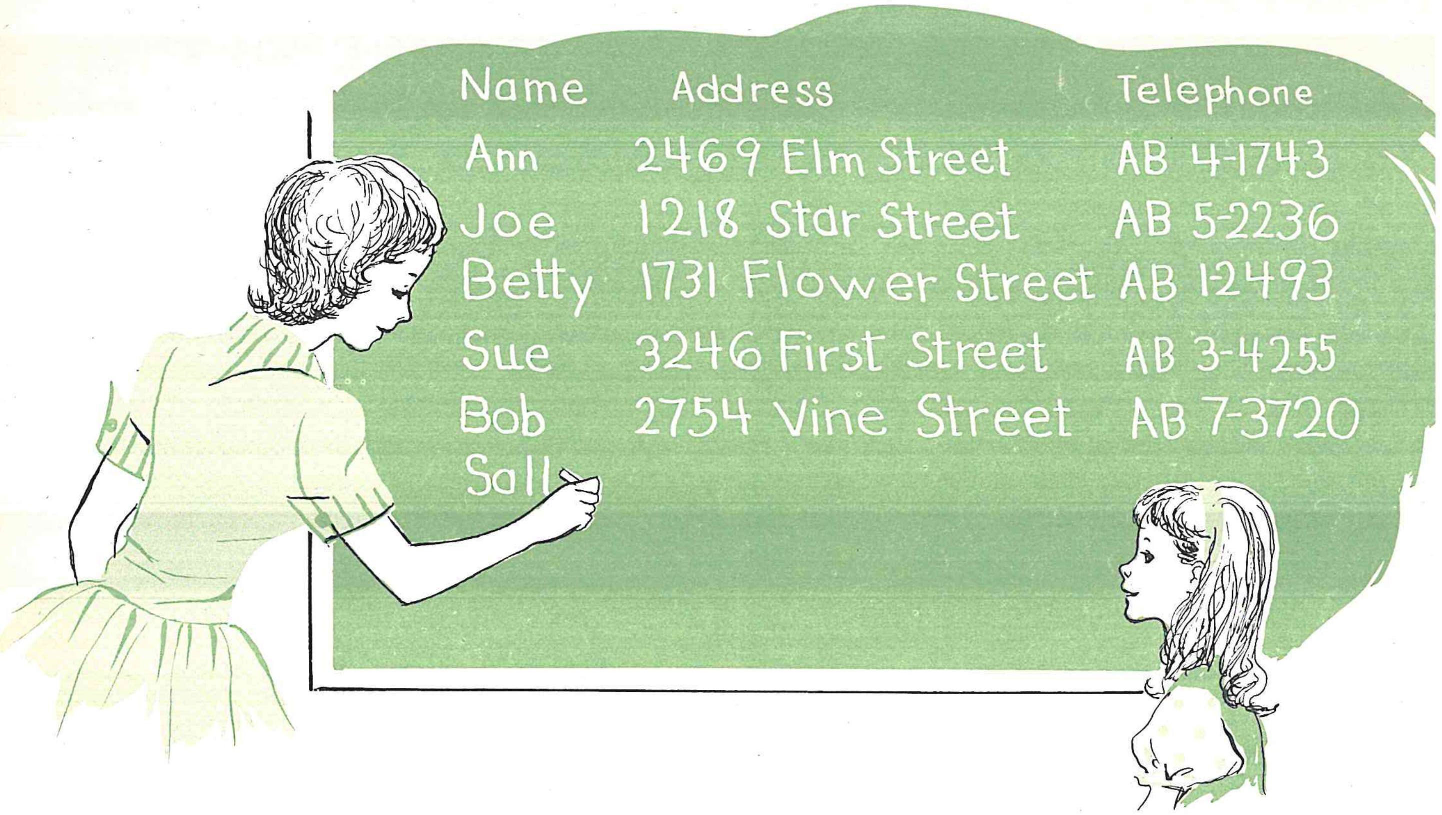
9 + 6 = 15 6 + 9 = 15 6 + 8 = 14 8 + 6 = 14

Subtract. Use the number line to find the answers:



15	14	15	12	11	14	12	13	11
9	5	7	4	4	8	8	9	9
6	9	8	8	7	6	4	4	2
13	15	11	12	14	11	11	13	11
5	6	3	7	6	5	7	6	8
8	9	8	5	8	6	4	7	3
12	13	12	15	12	14	13	14	11
6	8	5	8	9	7	7	9	6
6	5	7	7	3	7	6	5	5

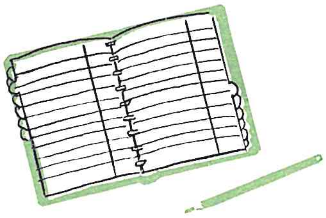
Practice in addition and subtraction through sums and minuends of 15. Using a number line for checking addition and subtraction.



Name	Address	Telephone
Ann	2469 Elm Street	AB 4-1743
Joe	1218 Star Street	AB 5-2236
Betty	1731 Flower Street	AB 1-2493
Sue	3246 First Street	AB 3-4255
Bob	2754 Vine Street	AB 7-3720
Sall		

Addresses and Telephone Numbers

Read the house numbers and telephone numbers:



4265 Smith Street	ST 4-2250
9640 Short Street	ST 5-4208
3741 North Street	ST 9-3178
5062 Elm Street	ST 8-5231

Write your name, address, and telephone number:

____

(Name) *(Address)* *(Telephone)*

Write the names, addresses, and telephone numbers of three of your friends:

____

____

____

Zero in a telephone number is read as the letter O. AB 4-1740 is read, "A B four -- one, seven, four, O." House numbers are often read as two-digit numbers: 4265 Smith Street is read: "forty-two, sixty-five Smith Street."

To build a readiness for making change.

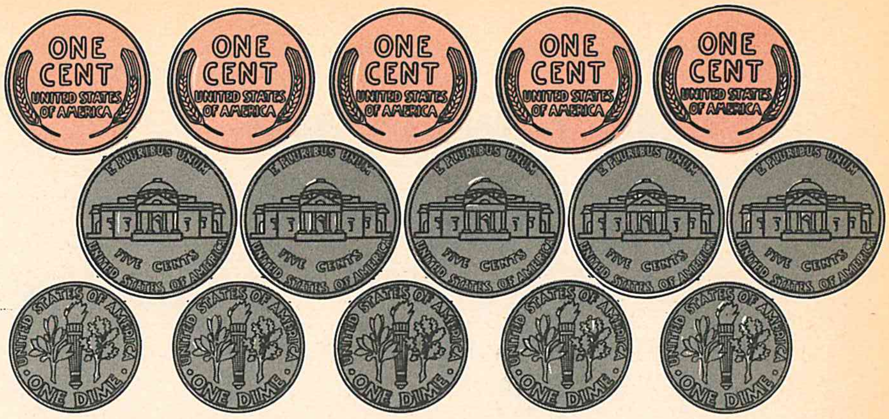
Making Change

Mary has

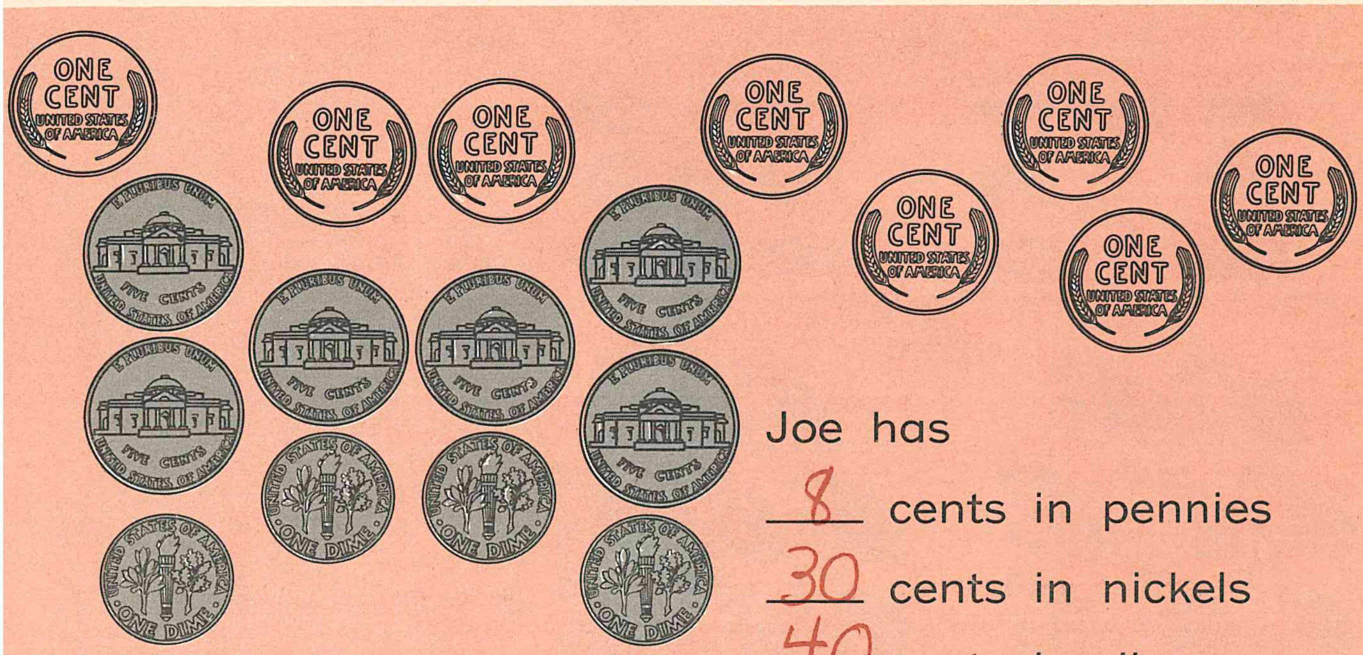
5 cents in pennies

25 cents in nickels

50 cents in dimes



Mary's money



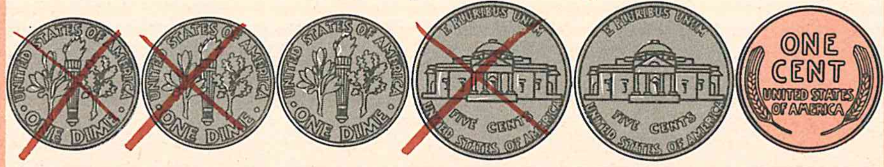
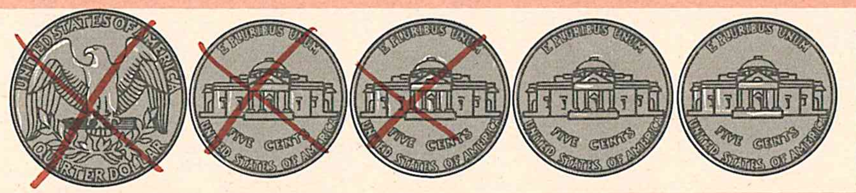
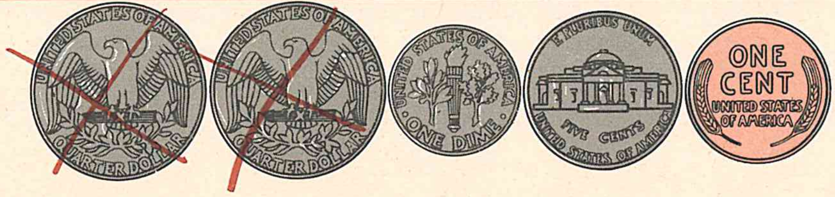
Joe's money

Joe has

8 cents in pennies

30 cents in nickels

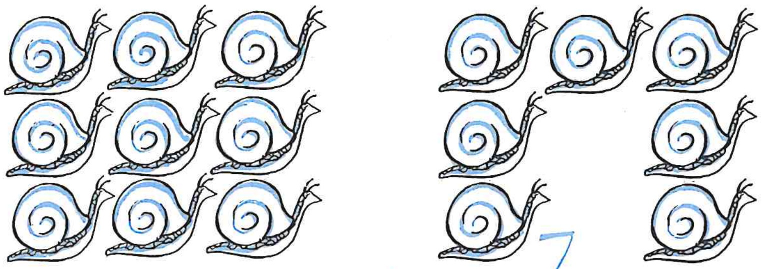
40 cents in dimes

Money spent	Cross out money spent:	**Money left**
25¢		16¢
35¢		10¢
50¢		16¢

Tell the children to count by 1's when counting pennies, to count by 5's when counting nickels, to count by 10's when counting dimes.

Adding To Make Sixteen

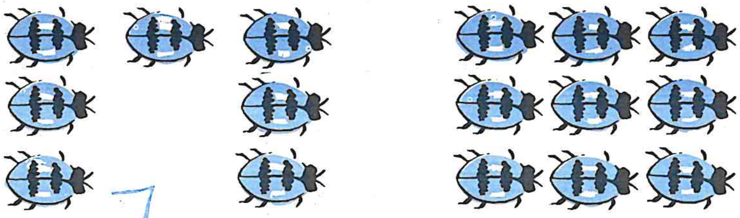
Write the numbers in the spaces:



9 + 7 = 16

9
+ 7
16

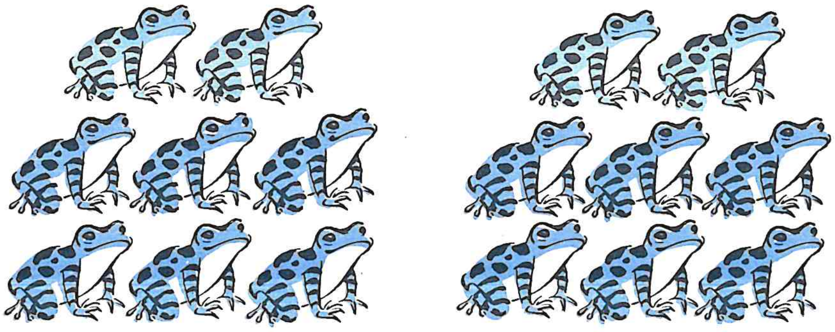
9 and 7 are 16.



7 + 9 = 16

7
+9
16

7 and 9 are 16.



8 + 8 = 16

8
+8
16

8 and 8 are 16.

9 and 7 are 16. 9 and 7 are 16. 8 and 8 are 16.

7 and 9 are 16. 8 and 8 are 16. 7 and 9 are 16.

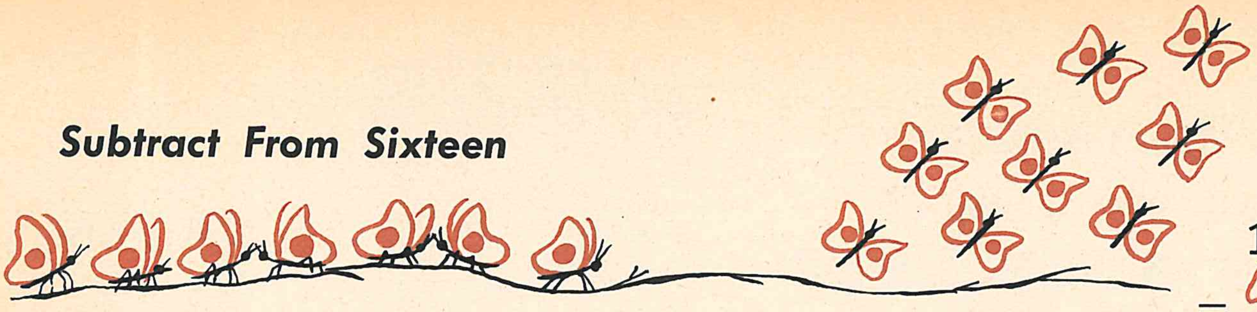
8 + 8 = 16 9 + 7 = 16 9 + 7 = 16

7 + 9 = 16 8 + 8 = 16 7 + 9 = 16

Add:

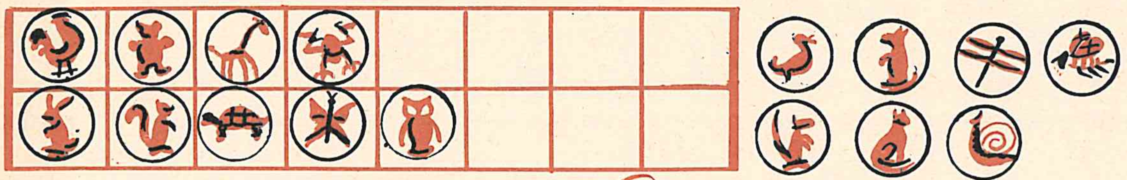
1	6	8	8	5	6	4	9	6	9
8	4	7	8	6	9	5	7	7	1
9	10	15	16	11	15	9	16	13	10

Subtract From Sixteen



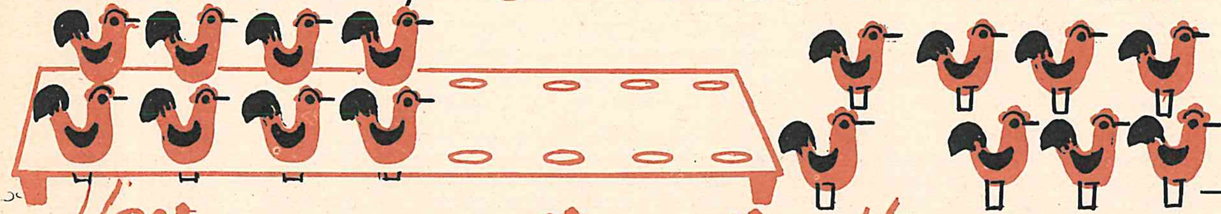
16 🦋s take away 9 🦋s is 7 🦋s. 16 − 9 = 7

16
− 9
7



16 s take away 7 s is 9 s. 16 − 7 = 9

16
− 7
9



16 🐓s take away 8 🐓s is 8 🐓s. 16 − 8 = 8

16
− 8
8

16 take away 7 is 9.

16 take away 9 is 7.

16 take away 9 is 7.

16 take away 8 is 8.

16 take away 8 is 8.

16 take away 7 is 9.

16 − 7 = 9

16 − 9 = 7

16 − 8 = 8

16 − 8 = 8

16 − 7 = 9

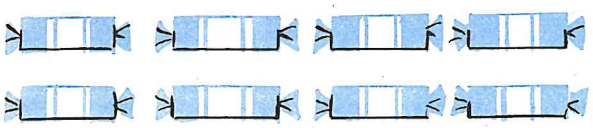
16 − 9 = 7

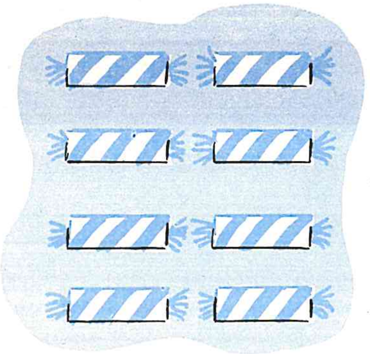
Subtract:

13	15	11	16	12	13	8	14	11	15
7	9	2	8	3	9	4	6	3	7
6	6	9	8	9	4	4	8	8	8
12	14	11	7	16	13	12	12	11	16
4	5	4	2	9	8	7	3	5	7
8	9	7	5	7	5	5	9	6	9

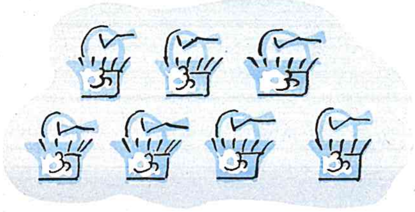
All About Sixteen

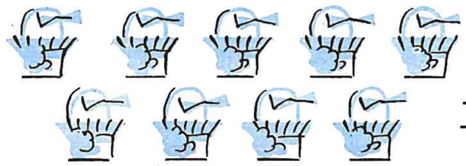
Write the answers:





8	16
+8	−8
16	8





7	9	16	16
+9	+7	−7	−9
16	16	9	7

Add:

9	7	9	7	6	9	7	7	5	9
4	5	6	9	9	5	6	7	9	3
13	12	15	16	15	14	13	14	14	12

6	9	8	8	8	7	6	8	8	2
6	7	6	8	5	8	8	4	7	9
12	16	14	16	13	15	14	12	15	11

4	5	3	6	5	4	2	6	8	6
9	5	9	5	8	7	8	4	3	7
13	10	12	11	13	11	10	10	11	13

Subtract:

10	16	12	15	13	14	10	15	16
6	7	5	6	7	5	8	9	9
4	9	7	9	6	9	2	6	7

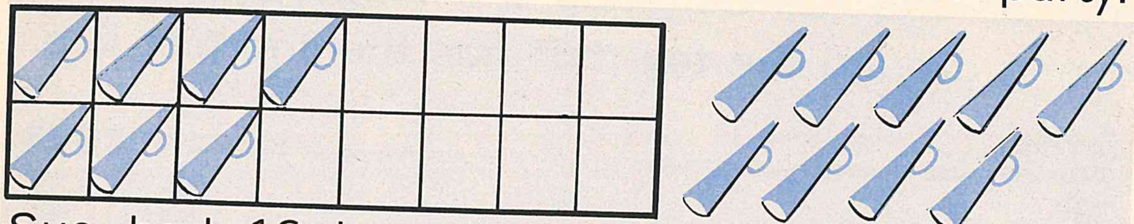
14	15	10	14	11	16	14	15	14
7	7	3	6	4	8	8	8	9
7	8	7	8	7	8	6	7	5

13	12	11	11	12	10	11	12	13
4	9	8	2	3	7	9	7	5
9	3	3	9	9	3	2	5	8

Number Stories

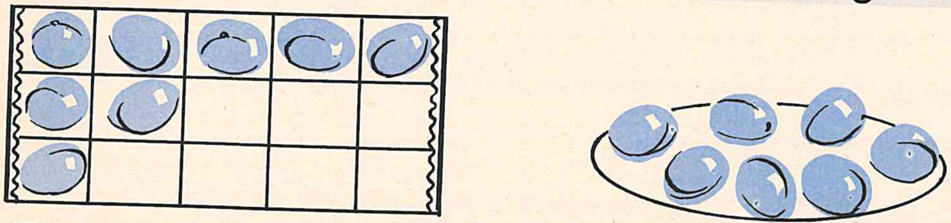
There were 8 girls and 8 boys at Sue's party. How many boys and girls were at the party?

8
+8
16



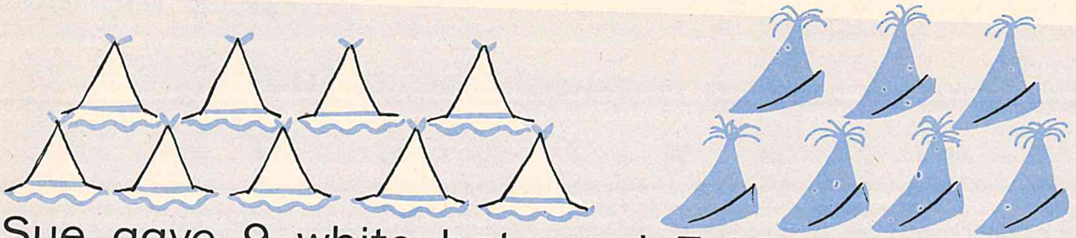
Sue had 16 horns. She gave 9 to the boys. How many horns were left for the girls?

16
-9
7



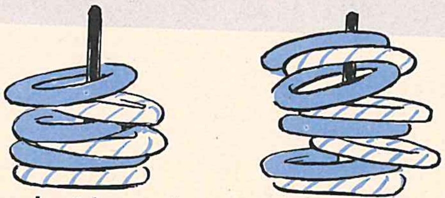
There were 15 plums in a box. Sue put 7 of them on a plate. How many plums were left in the box?

15
-7
8



Sue gave 9 white hats and 7 blue hats to the children. How many hats did she give to them?

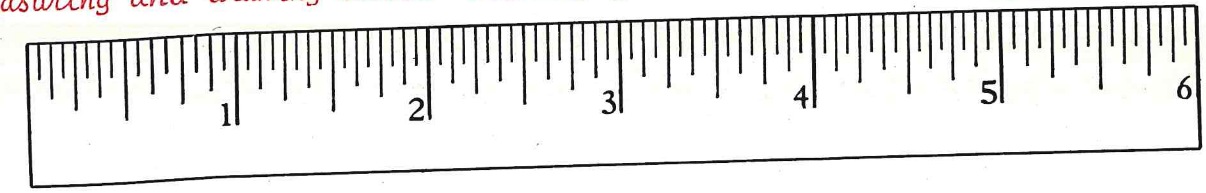
9
+7
16



The girls made 6 ringers and the boys made 8 ringers. How many ringers did the boys and girls make?

6
+8
14

Measuring and drawing lines. Becoming familiar with the terms inch and foot.



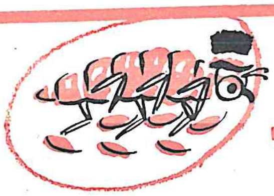
Using a Ruler

Measure the lines. How far did each toy go?
Put an X on the toy that has the longest line.
Draw a ring around the toy that has the shortest line.

3 inches

4 inches

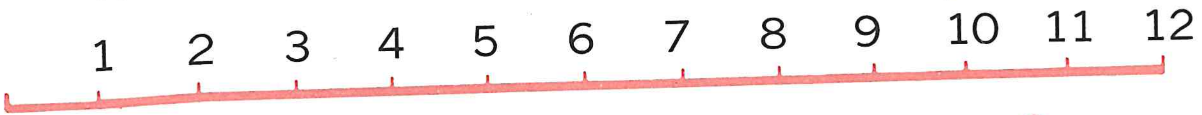
5 inches



2 inches

6 inches

This number line is marked like a foot ruler.



A foot ruler is 12 inches long. 1 foot = 12 inches

Measure with a foot ruler:

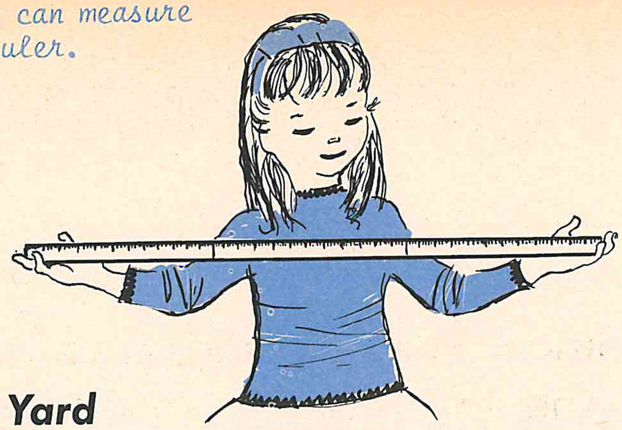
Your pencil: ____ inches Your book: ____ inches

Betty's cat is 9 inches tall. Is the cat more or less than a foot tall? less

Bob's dog is 15 inches tall. Is the dog more or less than a foot tall? more

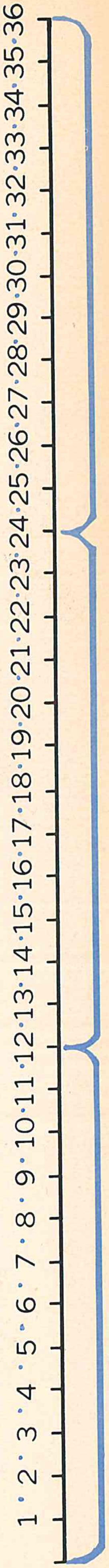
To make comparisons involving lengths and heights. Have the pupils measure books, paper, pencils, and various objects in the room. Have pupils make other comparisons of length and height.

Show pupils how they can measure
a yard with a foot ruler.



Inch, Foot, and Yard

This is a number line marked like a yardstick. →


1 · 2 · 3 · 4 · 5 · 6 · 7 · 8 · 9 · 10 · 11 · 12 · 13 · 14 · 15 · 16 · 17 · 18 · 19 · 20 · 21 · 22 · 23 · 24 · 25 · 26 · 27 · 28 · 29 · 30 · 31 · 32 · 33 · 34 · 35 · 36

A yardstick is 36 inches long.

1 yard = 36 inches

A yardstick measures 3 feet at one time.

Write the numbers:

1 yard = 36 inches 1 yard = 3 feet

Measure with a yardstick:

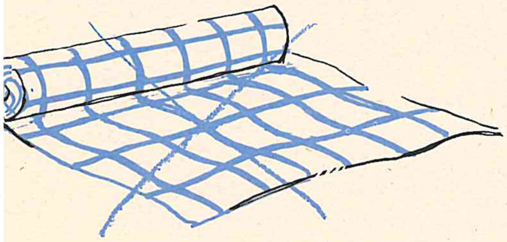
Your desk: ____ inches high

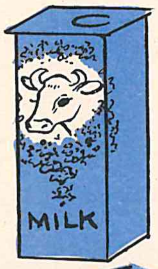
The chalkboard: ____ inches from the floor

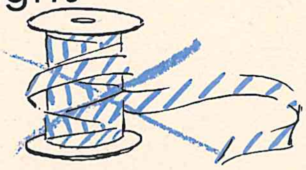
Mary is 30 inches tall. Is she more or less than a yard tall? less

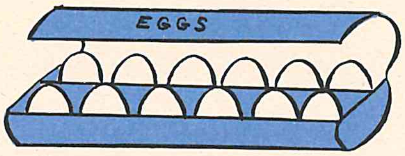
John's little brother is 4 feet tall. Is his brother more or less than a yard tall? more

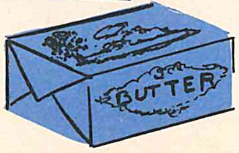
Put an X on the things that are bought by the yard:











Comparing two-digit numbers by vertical number line.

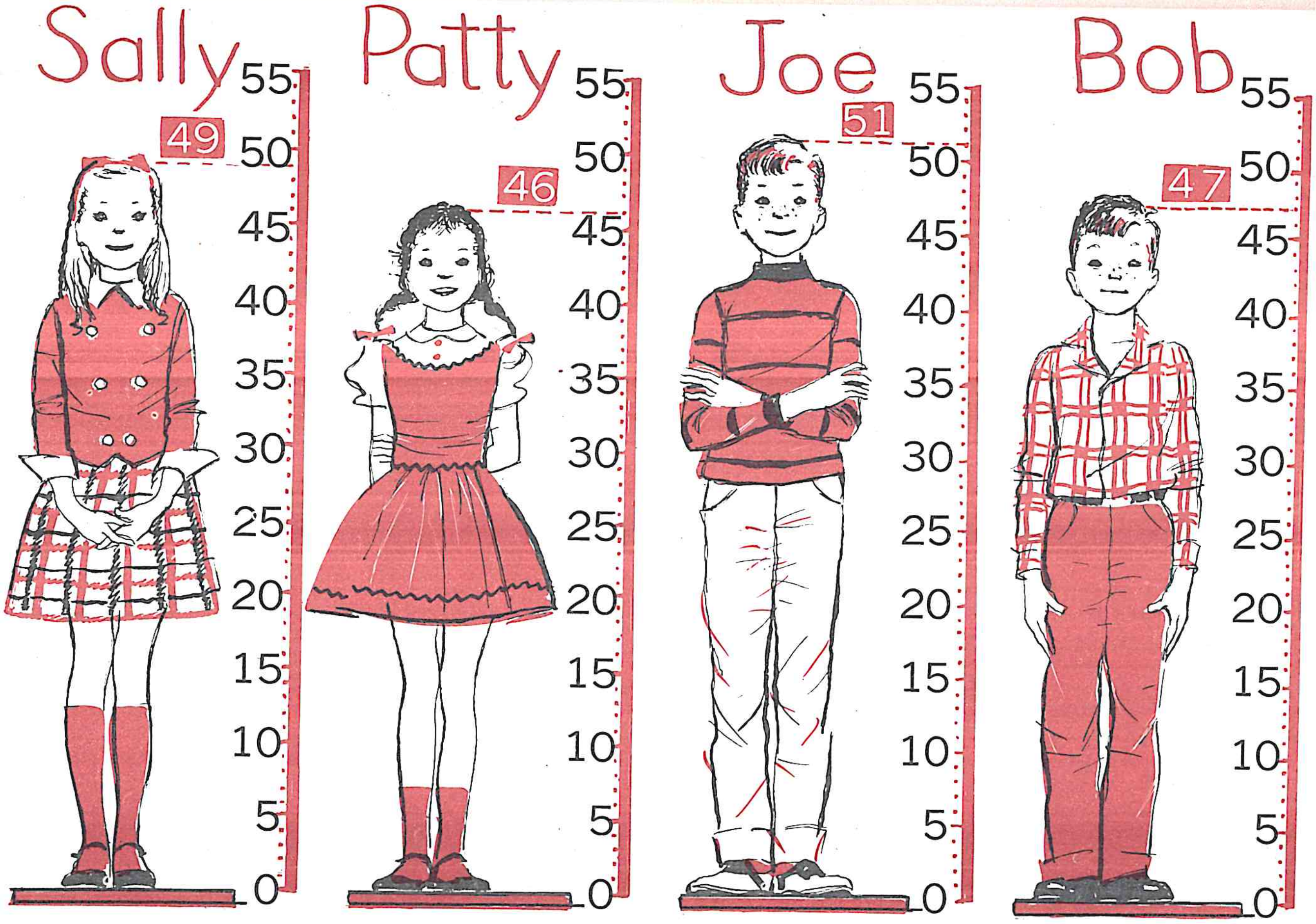
Height

How tall are you? _____ inches

Draw a ring around the name of the tallest one.

Ann	48 inches	[✓ Tom]	52 inches	Jim	49 inches
~~Mary~~	46 inches	Sue	49 inches	Don	51 inches

Put an X on the name of the shortest one.



49	inches	46	inches	51	inches	47	inches

Which girl is taller? Sally

How many inches taller? 3

Which boy is shorter? Bob

How many inches shorter? 4

Say, "Write the number that tells how tall Sally is--how tall Patty is. Count to see how much taller Sally is than Patty." Then children find out how much shorter Bob is than Joe by counting.

Continuation of page 112.

Although children have not learned subtraction of 2-digit numbers, they can solve these problems by counting.

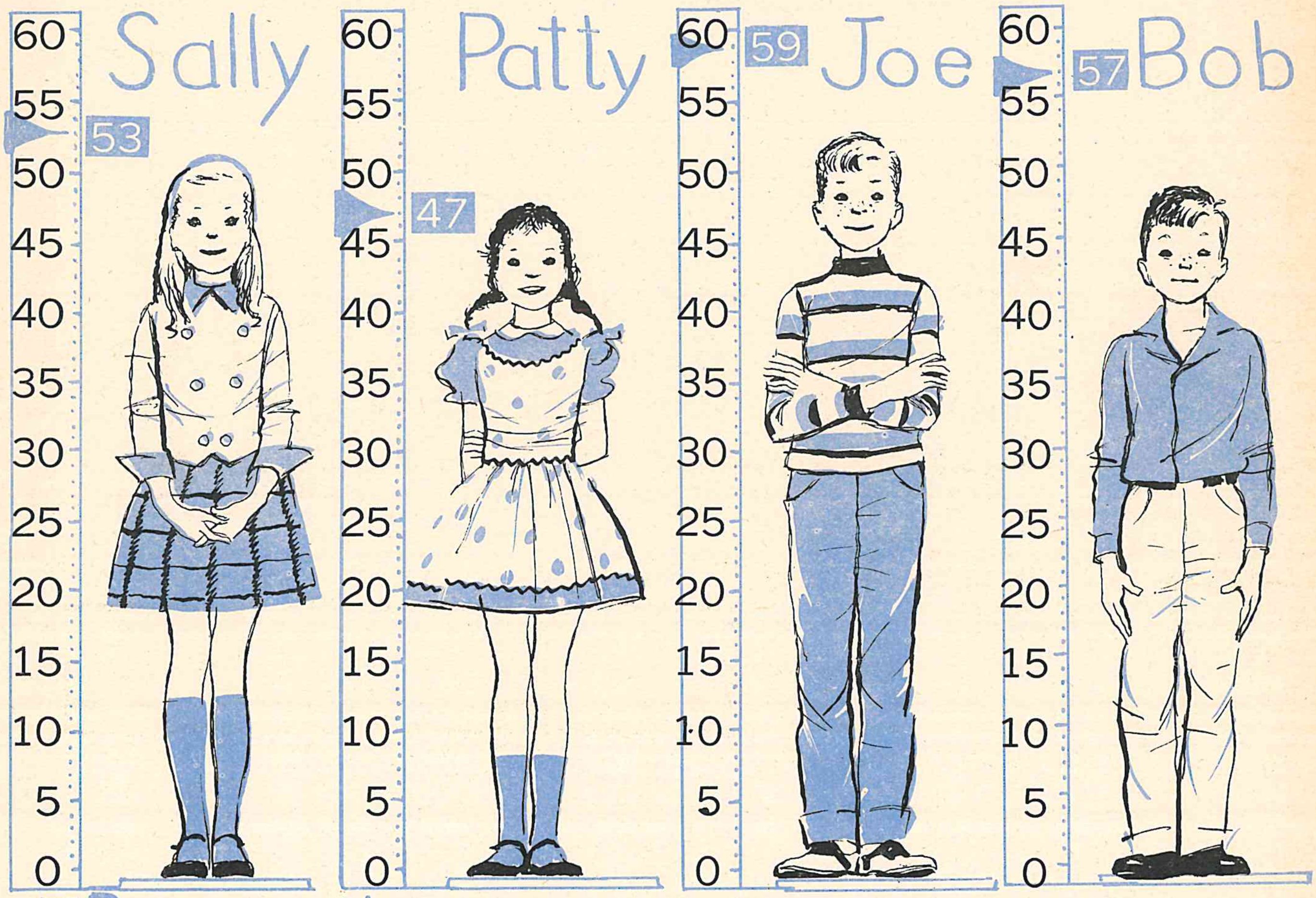
Weight

How much do you weigh? _____ pounds

Draw a ring around the one who weighs the most.

~~Mary~~	49 pounds	Sue	57 pounds	Ann	54 pounds
Jim	58 pounds	[✓ Tom]	63 pounds	Don	61 pounds

Put an X on the one who weighs the least.



53 pounds 47 pounds 59 pounds 57 pounds

Which girl weighs more? Sally

How many pounds more? 6

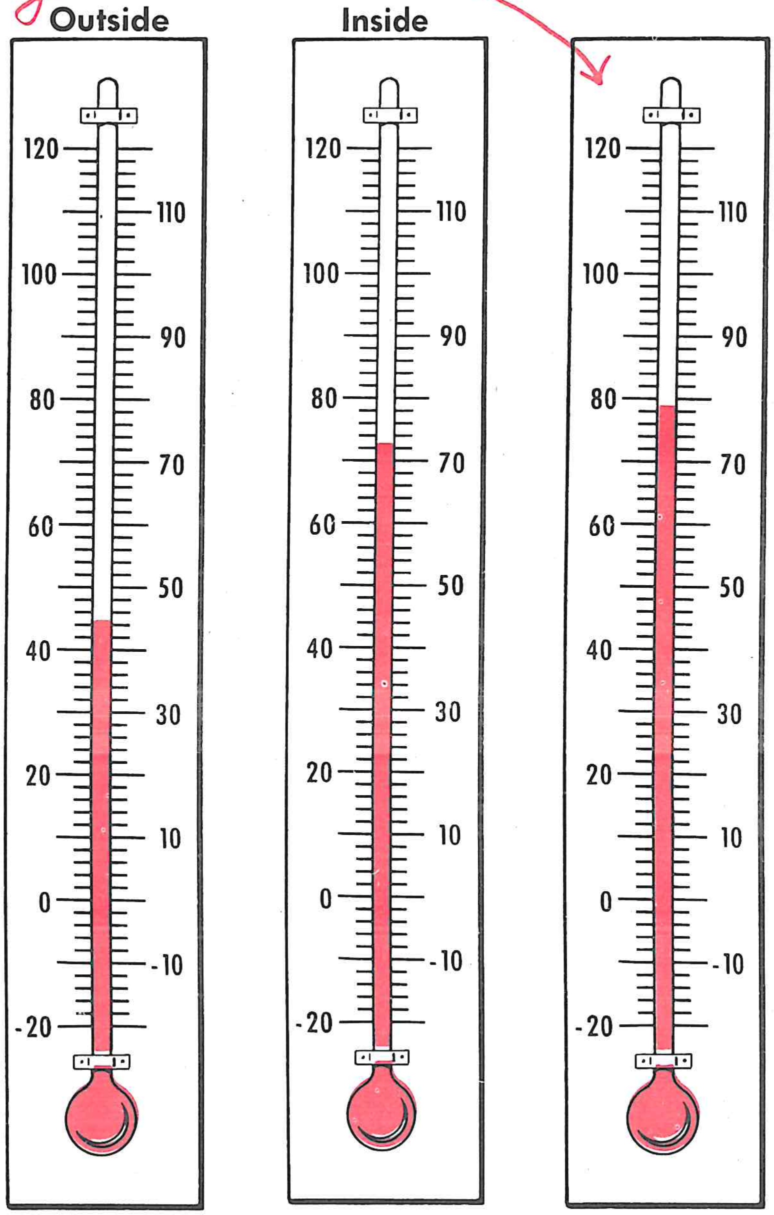
Which boy weighs less? Bob

How many pounds less? 2

The first problem is in counting to find how much more, or solving 47 + ___ = 53. The second is counting to find how much less, or solving 59 - ___ = 57. Both aspects of subtraction should be clear to pupils.

to be filled in by the child

Thermometers


Outside
Inside
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20

44 degrees 72 degrees 78 degrees

Shade the last thermometer to show 78 degrees.

Draw a ring around the temperature that is warmest:

42 degrees [✓ 80 degrees] 78 degrees 56 degrees

Draw a ring around the temperature that is the coldest: 38 degrees

84 degrees 96 degrees [✓ 29 degrees]

How Fast Are You?

Add:

9	3	6	7	5	6	8	9	7	5
5	8	6	3	8	9	8	1	6	9
14	11	12	10	13	15	16	10	13	14

7	8	4	5	4	8	9	5	9	7
4	6	9	6	8	7	4	7	2	8
11	14	13	11	12	15	13	12	11	15

7	6	7	3	8	6	8	1	6	8
9	8	5	9	2	5	4	9	7	3
16	14	12	12	10	11	12	10	13	11

Subtract:

14	11	16	12	13	15	11	11	13
7	6	9	8	9	8	4	3	8
7	5	7	4	4	7	7	8	5

10	14	16	11	14	13	12	15	14
2	5	7	5	6	5	3	6	9
8	9	9	6	8	8	9	9	5

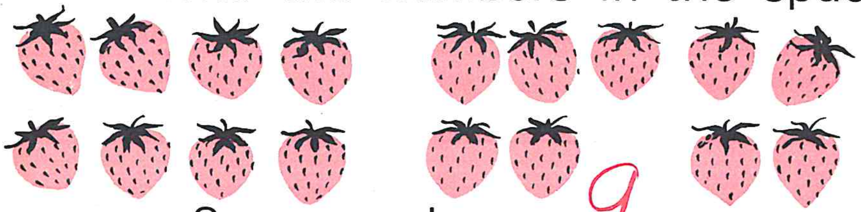
13	12	13	11	12	10	11	12	15
4	7	6	7	9	4	8	5	9
9	5	7	4	3	6	3	7	6

Work the problems. Watch the signs:

16	9	7	14	8	13	12	15	9
−8	+6	+7	−8	+5	−7	−4	−7	+7
8	15	14	6	13	6	8	8	16

Adding To Make Seventeen

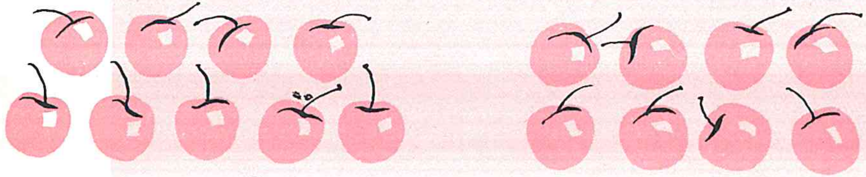
Write the numbers in the spaces:



8 + 9 = 17

$$\begin{array}{r} 8 \\ +9 \\ \hline 17 \end{array}$$

8 and 9 are 17.



9 + 8 = 17

$$\begin{array}{r} 9 \\ +8 \\ \hline 17 \end{array}$$

9 and 8 are 17.

8 and 9 are 17. 8 and 8 are 16. 9 and 8 are 17.

9 and 8 are 17. 8 and 9 are 17. 9 and 7 are 16.

8 + 8 = 16 9 + 8 = 17 8 + 9 = 17

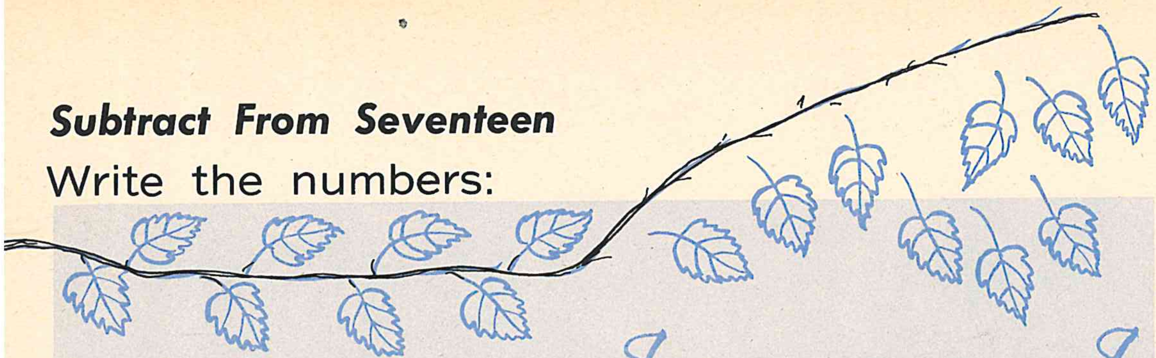
9 + 8 = 17 8 + 9 = 17 9 + 7 = 16

Add:

4	5	8	6	8	5	5	4	3
1	9	1	5	9	5	7	3	2
5	14	9	11	17	10	12	7	5
9	9	2	7	3	4	6	5	3
6	2	6	9	9	6	8	2	3
15	11	8	16	12	10	14	7	6
1	4	5	1	8	6	7	3	6
3	8	4	7	3	3	8	7	1
4	12	9	8	11	9	15	10	7
1	3	8	1	8	7	7	7	2
5	5	8	9	5	4	6	7	8
6	8	16	10	13	11	13	14	10

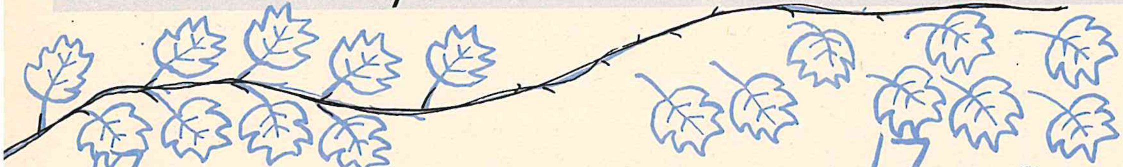
Subtract From Seventeen

Write the numbers:



$$\begin{array}{r}17\\-9\\\hline 8\end{array}$$

17 take away 9 is 8. 17 − 9 = 8



$$\begin{array}{r}17\\-8\\\hline 9\end{array}$$

17 take away 8 is 9 17 − 8 = 9

17 take away 9 is 8.

17 take away 8 is 9.

17 take away 9 is 8.

17 take away 8 is 9.

15 take away 7 is 8.

16 take away 9 is 7.

17 − 8 = 9

17 − 9 = 8

17 − 9 = 8

17 − 8 = 9

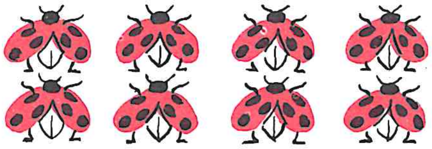
16 − 9 = 7

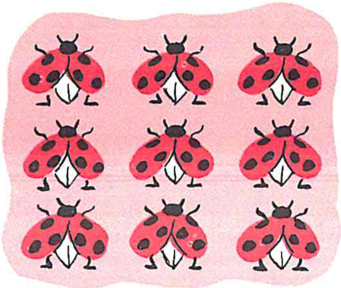
15 − 7 = 8

Subtract:

17	11	12	14	7	10	9	15	10
9	6	9	7	5	1	5	6	5
8	5	3	7	2	9	4	9	5
8	5	10	9	13	7	12	11	15
2	3	2	6	6	6	8	7	8
6	2	8	3	7	1	4	4	7
16	11	12	9	13	6	10	14	7
7	8	7	7	5	6	3	9	4
9	3	5	2	8	0	7	5	3
16	11	8	13	6	12	9	14	10
8	9	3	4	2	6	8	8	4
8	2	5	9	4	6	1	6	6

All About Seventeen





Write the answers:

8	9	17	17
+9	+8	−8	−9
17	17	9	8

Add:	5	6	3	2	8	6	4	9	4
	8	6	4	9	9	4	4	3	5
	13	12	7	11	17	10	8	12	9

1	2	8	2	4	2	2	3	6	3
7	5	7	7	9	6	2	8	7	5
8	7	15	9	13	8	4	11	13	8

4	7	3	4	7	9	7	8	2	9
2	5	3	7	7	8	3	8	3	5
6	12	6	11	14	17	10	16	5	14

7	9	6	8	1	8	9	5	5	8
9	1	9	4	1	2	7	6	5	6
16	10	15	12	2	10	16	11	10	14

Subtract:	14	11	12	9	7	9	13	14
	5	2	6	4	2	3	7	7
	9	9	6	5	5	6	6	7

8	16	15	13	11	12	10	10	15	11
5	9	8	9	3	5	2	5	7	7
3	7	7	4	8	7	8	5	8	4

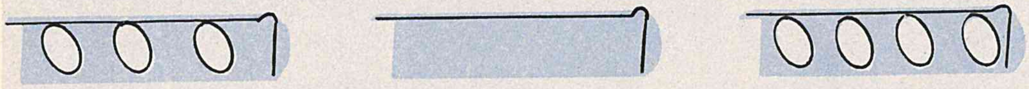
13	17	6	15	10	14	16	13	12
4	8	5	6	7	8	7	6	7
9	9	1	9	3	6	9	7	5

14	16	11	13	11	17	13	11	12
9	8	4	8	5	9	5	6	9
5	8	7	5	6	8	8	5	3

Using zero as an addend in column addition. Stress the need for writing zero even though it does not affect the sum.

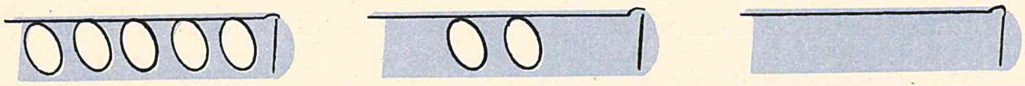
Zero in Addition

Bill had 3 eggs in one box, 0 eggs in the second box, and 4 eggs in the third box. How many eggs did he have in all?



3 eggs
0 eggs
4 eggs
7 eggs

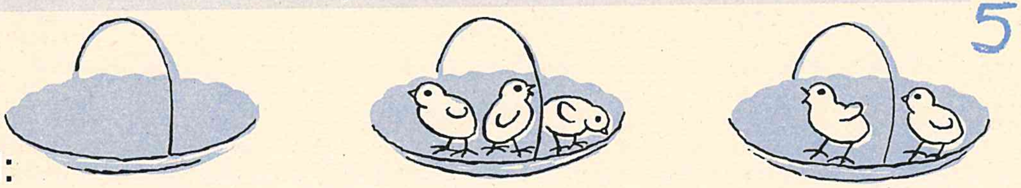
Ann had 5 eggs in one box, 2 eggs in another box, and 0 eggs in another box. How many eggs did Ann have in all?



5 eggs
2 eggs
0 eggs
7 eggs

Sue had 0 chicks in one basket, 3 in another basket, and 2 chicks in a third basket. How many chicks did Sue have?

0 chicks
3 chicks
2 chicks
5 chicks



Add:

5	2	6	0	1	2	3	4	2	0	0
1	0	2	4	2	1	0	1	2	4	1
0	4	0	3	0	2	1	2	2	2	1
6	6	8	7	3	5	4	7	6	6	2
2	1	4	3	3	3	4	1	2	4	3
3	4	1	3	2	2	4	0	3	4	0
3	3	2	3	1	3	2	4	4	5	2
8	8	7	9	6	8	10	5	9	13	5
5	3	4	0	3	1	4	3	1	3	2
3	2	4	4	2	2	5	6	4	4	1
4	5	4	1	2	3	3	0	5	3	0
12	10	12	5	7	6	12	9	10	10	3

Numbers We Use

Write a number story about you: Grade 2

Age ____ Weight ____ pounds Height ____ inches

Number of brothers ____ Number of sisters ____

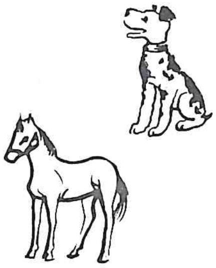
House number ________ Telephone ________

Measure the lines:

3 inches

1 inch~~es~~

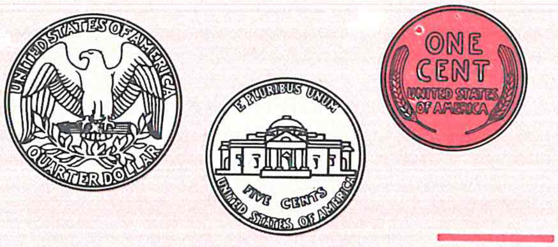
2 inches



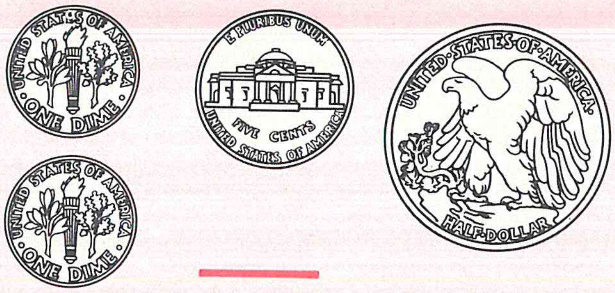
John's dog is 11 inches long. Is the dog more or less than a foot long? less

Bob's pony is 44 inches tall. Is the pony more or less than a yard tall? more

Count the money:



____



____

Add:

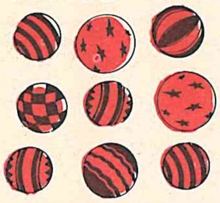
						4	6	2
9	8	7	9	8	6	0	7	3
6	9	8	7	8	9	3	0	5
15	17	15	16	16	15	7	13	10

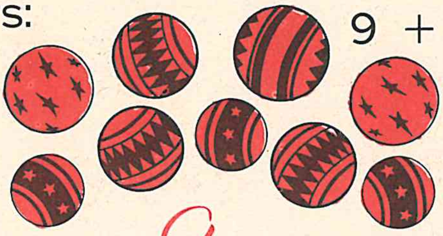
Subtract:

16	15	17	16	15	17	16	15	15
7	6	8	9	8	9	8	7	9
9	9	9	7	7	8	8	8	6

All About Eighteen

Write the numbers:

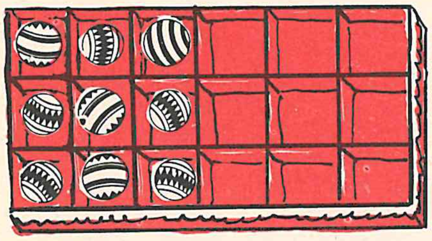


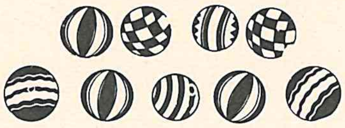


9 + 9 = 18

$$\begin{array}{r} 9 \\ +\ 9 \\ \hline 18 \end{array}$$

9 and 9 are 18.





$$\begin{array}{r} 18 \\ -9 \\ \hline 9 \end{array}$$

18 take away 9 is 9.

18 − 9 = 9

18 take away 9 is 9.

9 and 9 are 18.

18 take away 9 is 9.

9 and 9 are 18.

15 take away 7 is 8.

6 and 5 are 11.

18 − 9 = 9

9 + 9 = 18

15 − 7 = 8

6 + 5 = 11

9 + 9 = 18

18 − 9 = 9

Add the doubles:

5	8	3	7	1	6	4	2	9
5	8	3	7	1	6	4	2	9
10	16	6	14	2	12	8	4	18

Subtract:

4	8	14	2	6	16	10	12	18
2	4	7	1	3	8	5	6	9
2	4	7	1	3	8	5	6	9

Write the numbers in the spaces:

1 + 5 + 4 = 10

4 + 5 + 4 = 13

1 + 5 + 3 = 9

How Fast Can You Work?

Add:

7	9	8	8	8	7	6	5	9	5
4	3	8	9	6	8	6	8	4	7
11	12	16	17	14	15	12	13	13	12

9	8	3	6	5	4	7	9	6	6
7	5	9	8	9	8	5	6	7	9
16	13	12	14	14	12	12	15	13	15

Subtract:

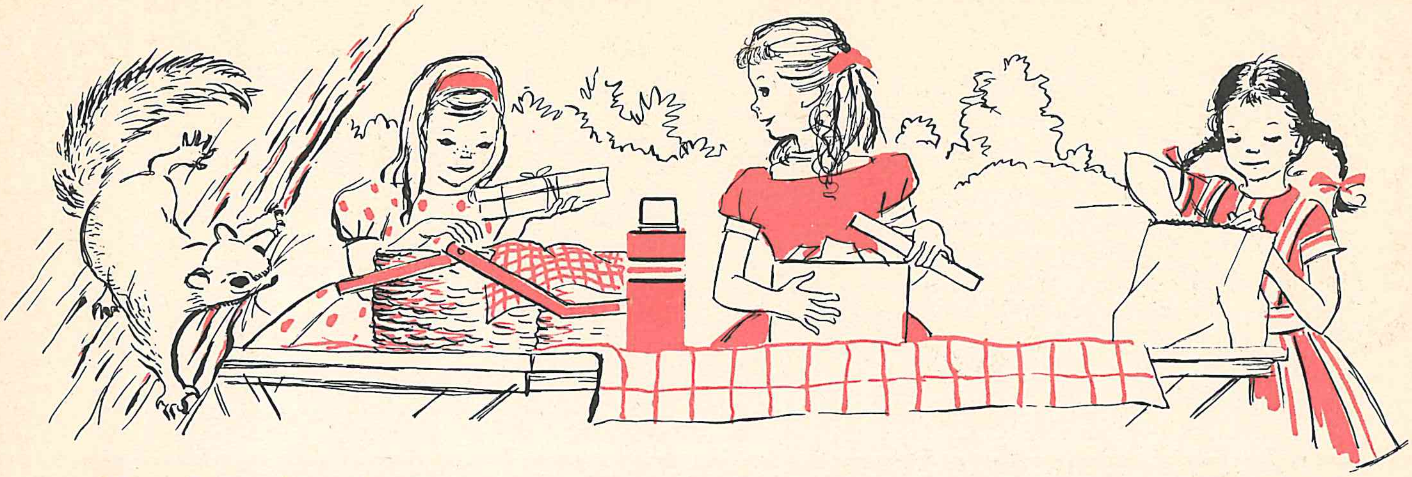
17	11	15	14	13	12	16	13	12
8	2	6	9	7	4	7	9	8
9	9	9	5	6	8	9	4	4

15	16	12	15	14	12	12	13	12
7	9	9	8	5	3	5	6	7
8	7	3	7	9	9	7	7	5

Work the problems. Watch the signs!

9	15	14	8	13	8	7	18	6
+9	−9	−6	+7	−5	+4	+9	−9	+5
18	6	8	15	8	12	16	9	11

12	14	17	9	9	4	13	7	16
−6	−8	−9	+8	+5	+9	−8	+7	−8
6	6	8	17	14	13	5	14	8



Number Stories

Sue brought 9 cakes to the picnic. Ann brought 9 cakes, too. How many cakes did the girls bring?

$$\begin{array}{r} 9 \\ +9 \\ \hline 18 \end{array}$$

Jane brought 8 big cookies and 9 small cookies. How many cookies did she bring?

$$\begin{array}{r} 8 \\ +9 \\ \hline 17 \end{array}$$

Bill brought 18 apples to the picnic. He gave 9 of them to the boys. How many apples did he have left?

$$\begin{array}{r} 18 \\ -9 \\ \hline 9 \end{array}$$

Sam brought 7 sticks of candy and Pat brought 8. How many sticks of candy did Sam and Pat bring?

$$\begin{array}{r} 7 \\ +8 \\ \hline 15 \end{array}$$

Sally had 15 cups. She put 8 of them on the table. How many cups did Sally have left?

$$\begin{array}{r} 15 \\ -8 \\ \hline 7 \end{array}$$

Sue had 16 plates. 7 of them were red and the rest were white. How many plates were white?

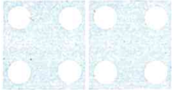
$$\begin{array}{r} 16 \\ -7 \\ \hline 9 \end{array}$$

Readiness for multiplication.

Doubles

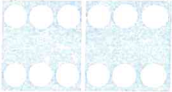
2 + 2 = 4

Two 2's are 4.



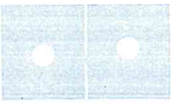
4 + 4 = 8

Two 4's are 8.



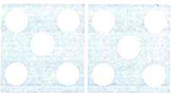
6 + 6 = 12

Two 6's are 12.



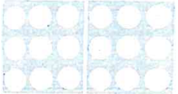
1 + 1 = 2

Two 1's are 2.



5 + 5 = 10

Two 5's are 10.

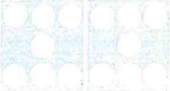


9 + 9 = 18

Two 9's are 18.

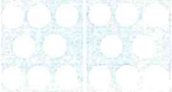
3 + 3 = 6

Two 3's are 6.



7 + 7 = 14

Two 7's are 14.



8 + 8 = 16

Two 8's are 16.

Add the doubles:

1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18

Write the answers:

1 + 1 = 2

Two 1's are 2.

2 + 2 = 4

Two 2's are 4.

3 + 3 = 6

Two 3's are 6

4 + 4 = 8

Two 4's are 8.

5 + 5 = 10

Two 5's are 10.

6 + 6 = 12

Two 6's are 12.

7 + 7 = 14

Two 7's are 14.

8 + 8 = 16

Two 8's are 16.

9 + 9 = 18.

Two 9's are 18.

Readiness for division.

Working With Doubles

Subtract:

18	6	14	2	10	4	16	12	8
9	3	7	1	5	2	8	6	4
9	3	7	1	5	2	8	6	4

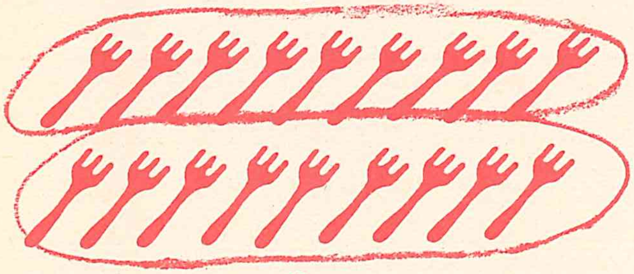
Write the missing numbers:

18 − 9 = 9
12 − 6 = 6
6 − 3 = 3

16 − 8 = 8
8 − 4 = 4
4 − 2 = 2

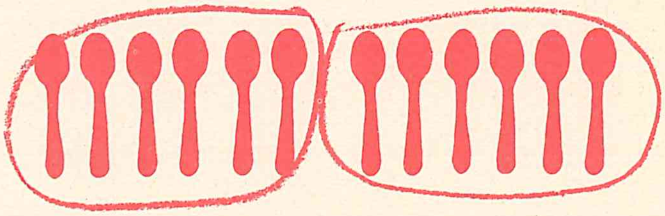
10 − 5 = 5
14 − 7 = 7
2 − 1 = 1

Circle each group of 9:



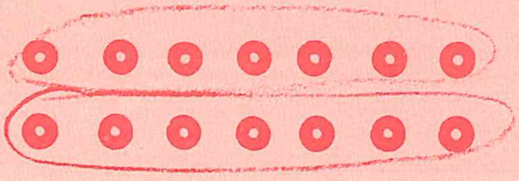
There are 2 nines in 18.

Circle each group of 6:



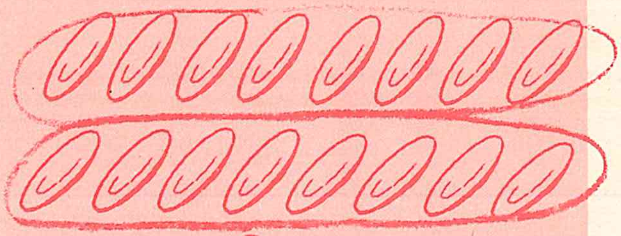
There are 2 sixes in 12.

Circle each group of 7:



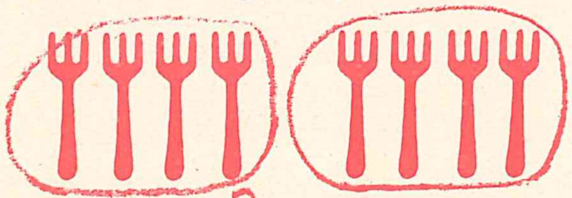
There are 2 sevens in 14.

Circle each group of 8:



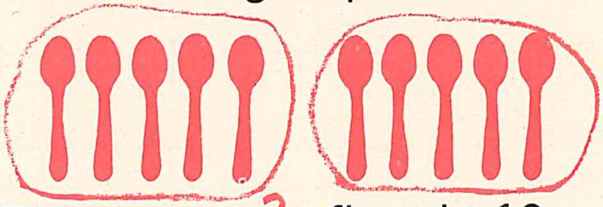
There are 2 eights in 16.

Circle each group of 4:



There are 2 fours in 8.

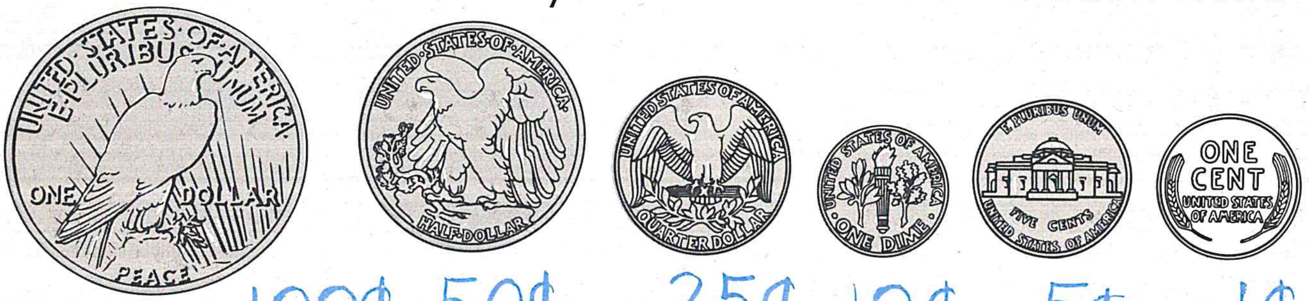
Circle each group of 5:



There are 2 fives in 10.

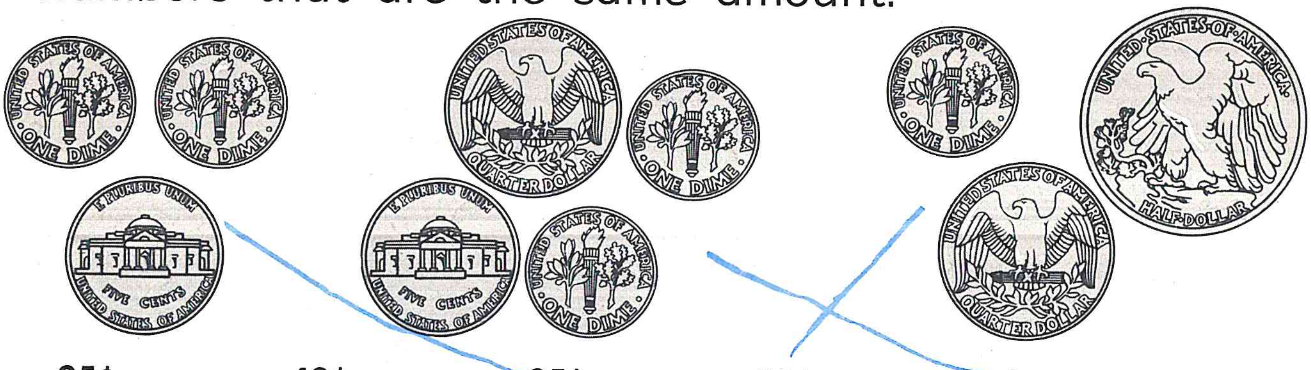
Coins

Write how many cents there are in each coin:


UNITED STATES OF AMERICA
E PLURIBUS UNUM
ONE DOLLAR
PEACE
HALF DOLLAR
QUARTER DOLLAR
ONE DIME
FIVE CENTS
ONE CENT

100¢ 50¢ 25¢ 10¢ 5¢ 1¢

Draw a line from each group of coins to the numbers that are the same amount:


ONE DIME
FIVE CENTS
QUARTER DOLLAR
HALF DOLLAR

35¢ **40¢** **25¢** **85¢** **50¢** **75¢**

A dime is the same as:
2 nickels
10 cents
1 nickel and
5 cents

A quarter is the same as:
25 cents
5 nickels
1 dime and
3 nickels

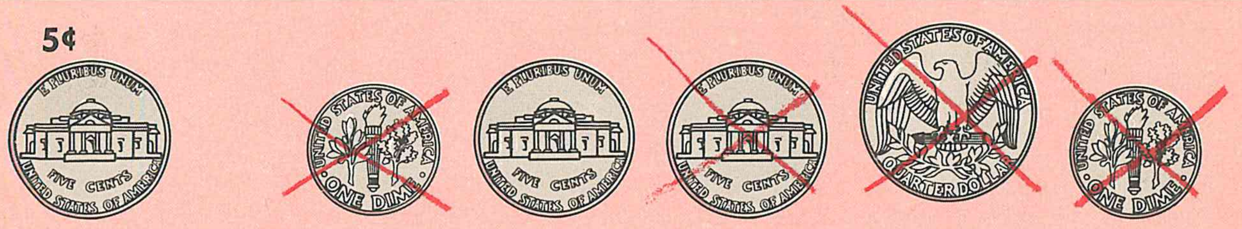
A half dollar is the same as:
50 cents
5 dimes
2 quarters

A dollar is the same as:
2 half dollars
4 quarters
10 dimes

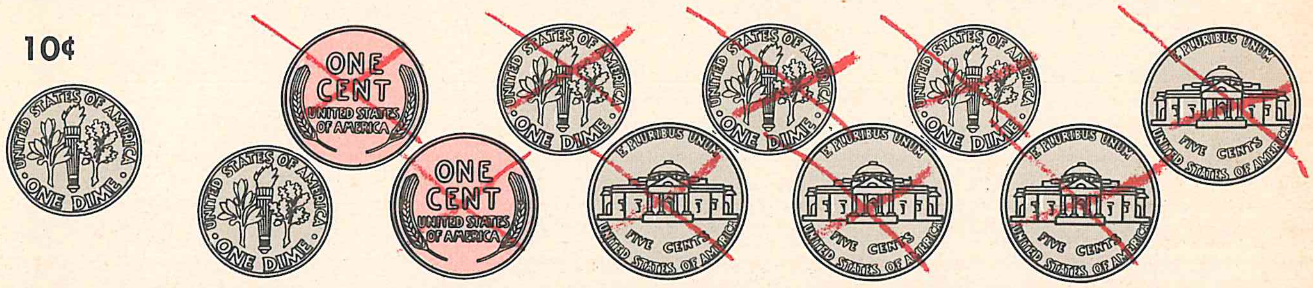
Counting Money

In each box look at the first coin. Then count the coins you need to make the same amount. Cross out the rest of the coins.

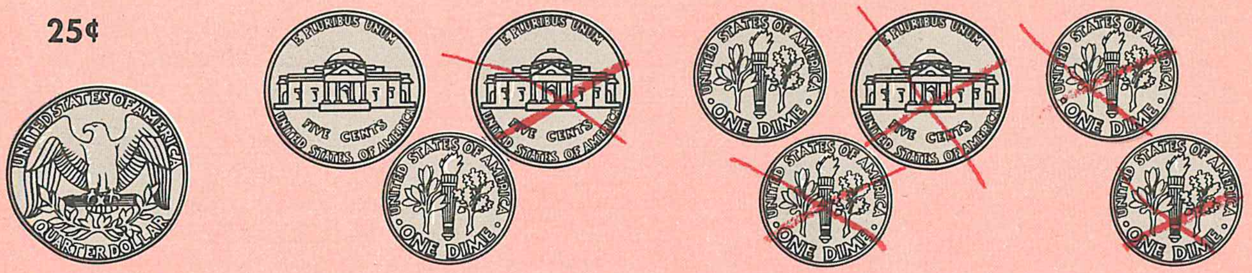
5¢



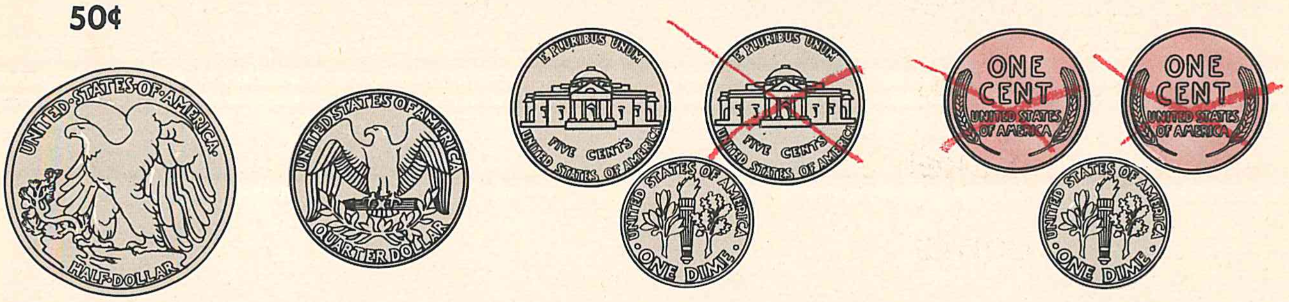
10¢



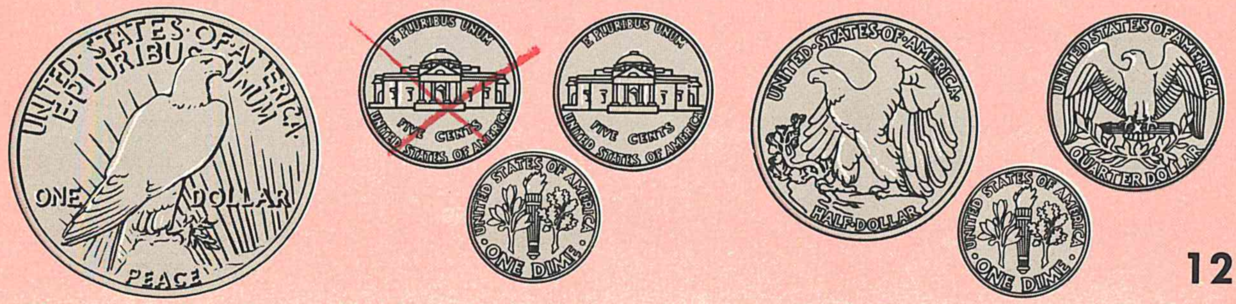
25¢



50¢



$1.00

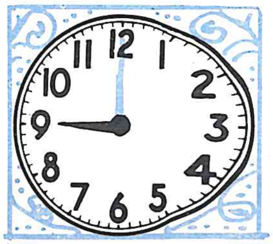


You may also have children tell how much money is left (crossed out) in each row.

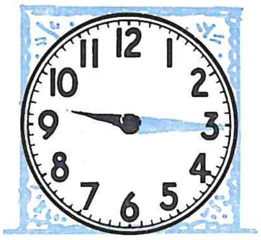
A review of telling time
to the quarter hour.

More About Clocks

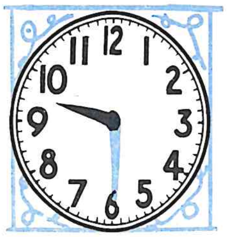
Draw the minute hand on each clock face to show the time:



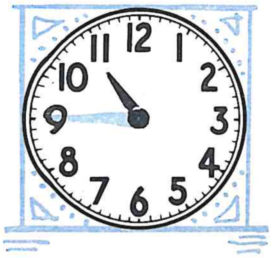
9 o'clock



Quarter past 9

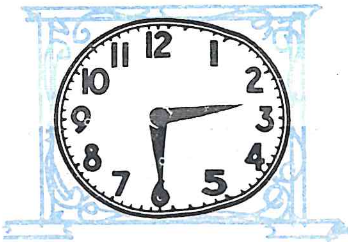


Half past 9

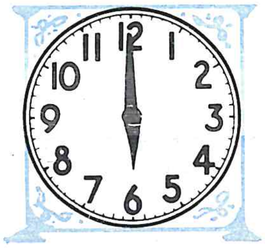


Quarter to 11

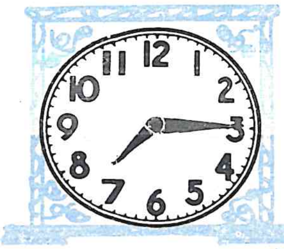
Write the time these clocks tell:



Half past 2

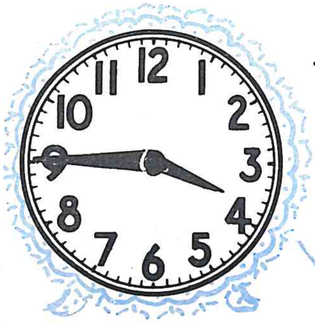


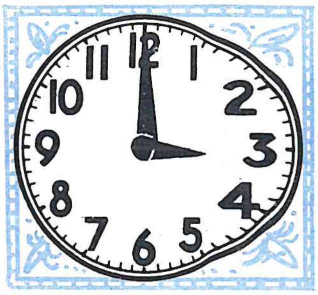
6 o'clock

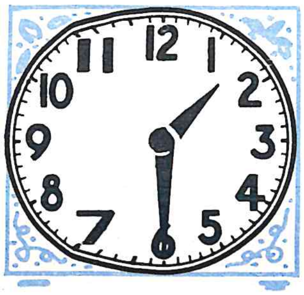


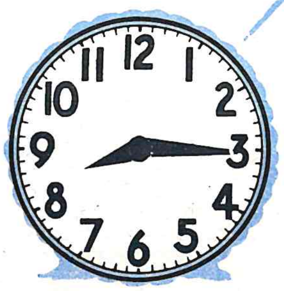
Quarter past 7

Draw a line from each clock to the time it tells:









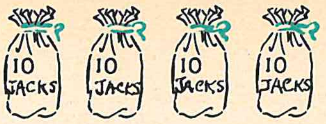
Half past 1

Quarter past 8

3 o'clock

Quarter to 4

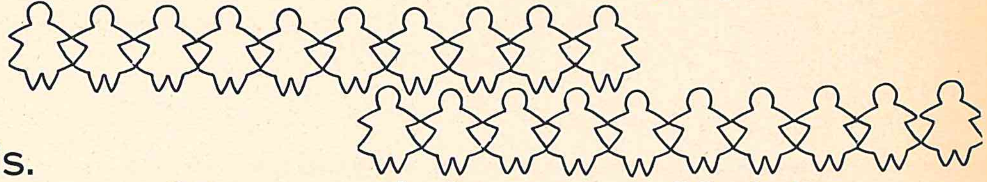
Show pupils that they first add the ones: 0 ones and 0 ones are 0 ones. Then they add the tens: 4 tens and 1 ten are 5 tens. Five tens are 50.


10 JACKS
10 JACKS
10 JACKS
10 JACKS

Adding Tens

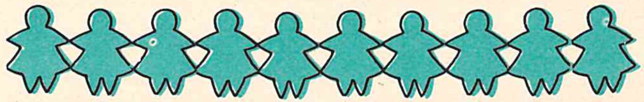
Ann had 40 jacks and a girl gave her 10 more. How many jacks did she have then?

4 tens and 0 ones   40 jacks
+1 ten and 0 ones   +10 jacks
5 tens and 0 ones   50 jacks

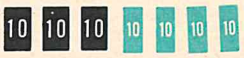


Mary had 20 dolls. Sue brought her 10 more dolls. How many dolls had she then?

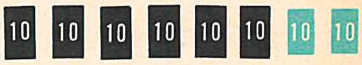
2 tens and 0 ones   20 dolls
+1 ten and 0 ones   +10 dolls
3 tens and 0 ones   30 dolls



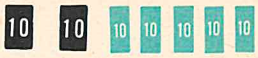
3 tens and 4 tens are 7 tens or 70.

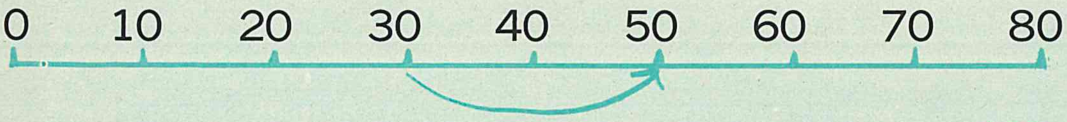

10
10
10
10
10
10
10

6 tens and 2 tens are 8 tens or 80.


10
10
10
10
10
10
10
10

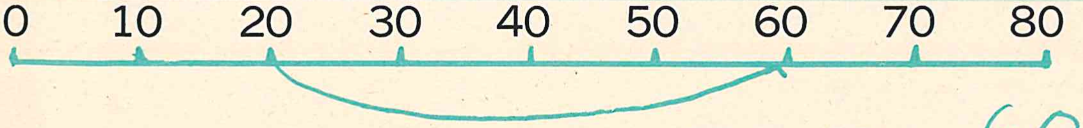
2 tens and 5 tens are 7 tens or 70.


10
10
10
10
10
10
10


0
10
20
30
40
50
60
70
80

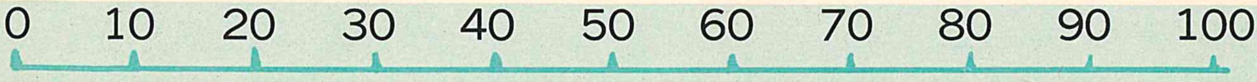
30 + 20 = 50

30
+20
50


0
10
20
30
40
50
60
70
80

20 + 40 = 60

20
+40
60

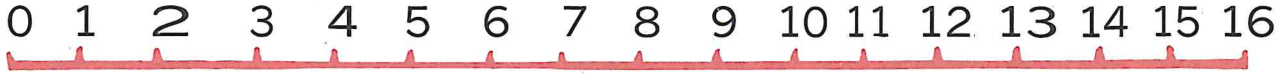

0
10
20
30
40
50
60
70
80
90
100

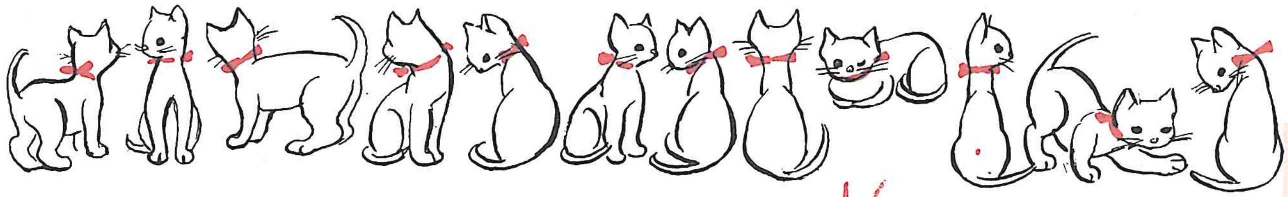
20	20	40	50	20	60	10	20
+10	+30	+10	+20	+70	+30	+30	+40
30	50	50	70	90	90	40	60

After you are sure the pupils understand the place-value, they may omit zero ones in their addition of tens.

Adding a two-digit number and a one-digit number.
Preparation for adding by endings.

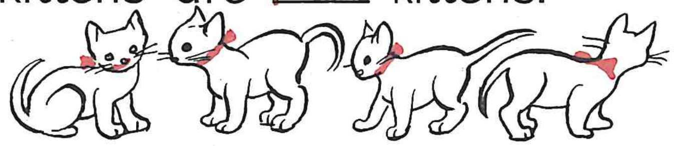
More About Addition



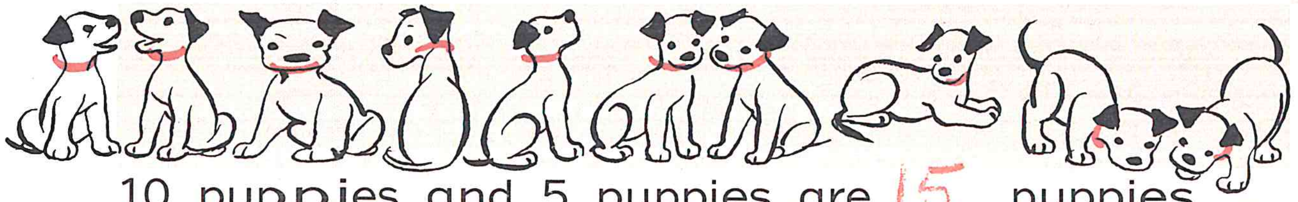


12 kittens and 4 kittens are 16 kittens.

12 + 4 = 16

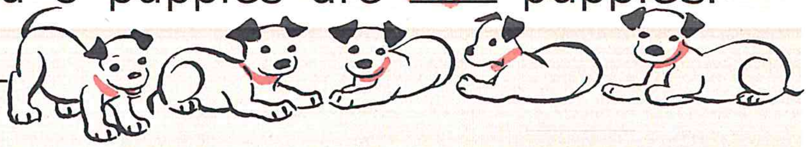


12
+4
16

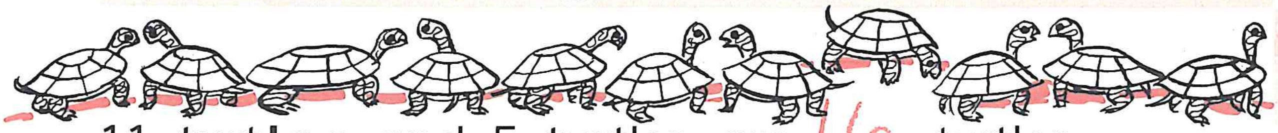


10 puppies and 5 puppies are 15 puppies.

10 + 5 = 15

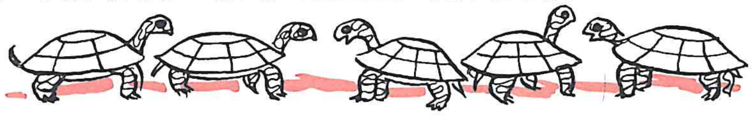


10
+5
15

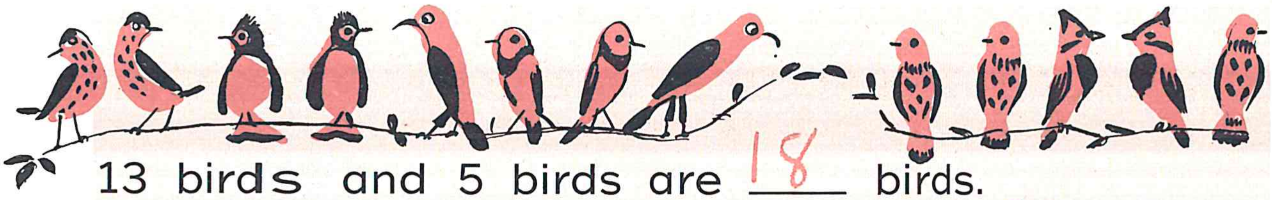


11 turtles and 5 turtles are 16 turtles.

11 + 5 = 16

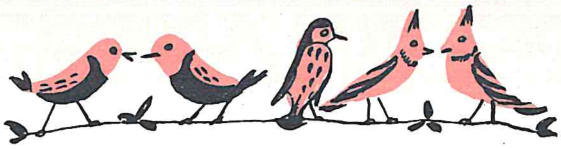


11
+5
16



13 birds and 5 birds are 18 birds.

13 + 5 = 18

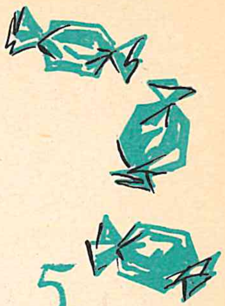


13
+5
18

Add:

16	17	15	10	11	12	14	13	16
3	2	3	7	5	4	5	6	2
19	19	18	17	16	16	19	19	18

Adding by endings without bridging.



Adding by Endings

Joe spent 2 cents for a marble and 3 cents for candy. How much did he spend?

2 cents + 3 cents = 5 cents　　2 + 3 = 5

Mary spent 12 cents for ice cream and 3 cents for a cookie. How much did she spend?

12 cents + 3 cents = 15 cents　　12 + 3 = 15

Bob spent 22 cents for a top and 3 cents for candy. How much did he spend?

22 cents + 3 cents = 25 cents　　22 + 3 = 25

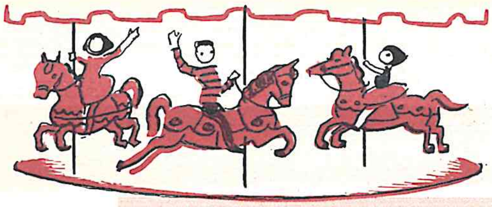
Write the answers:

2 + 4 = 6
12 + 4 = 16
22 + 4 = 26
32 + 4 = 36
24 + 3 = 27
4 + 3 = 7
14 + 3 = 17
34 + 3 = 37
11 + 6 = 17
31 + 6 = 37
21 + 6 = 27

1 + 7 = 8
11 + 7 = 18
21 + 7 = 28
31 + 7 = 38
25 + 4 = 29
5 + 4 = 9
15 + 4 = 19
35 + 4 = 39
5 + 1 = 6
15 + 1 = 16
25 + 1 = 26

26 + 2 = 28
6 + 2 = 8
36 + 2 = 38
16 + 2 = 18
23 + 2 = 25
33 + 2 = 35
3 + 2 = 5
13 + 2 = 15
7 + 2 = 9
27 + 2 = 29
37 + 2 = 39

This page is preparation for column addition. Stress that pupils can do the work in their heads, using only number facts.



Adding Two-Place Numbers

Mary saw 23 little monkeys and 14 big monkeys in the park. How many monkeys did Mary see?

Remember that larger numbers are made of tens and ones. Use counters to show:

23 = 2 tens and 3 ones
+14 = 1 ten and 4 ones
3 tens and 7 ones or 37

23 monkeys
+14 monkeys
37 monkeys

Bill counted 12 white ducks and 24 brown ducks on a pond. How many ducks did Bill count?

12 = 1 ten and 2 ones
+24 = 2 tens and 4 ones
3 tens and 6 ones or 36

12 ducks
+24 ducks
36 ducks

Ann saw 12 red birds and 15 black birds. How many birds did Ann see?

12 = 1 ten and 2 ones
+15 = 1 ten and 5 ones
2 tens and 7 ones or 27

12 birds
+15 birds
27 birds

33 children rode on the merry-go-round. Then 25 more rode. How many children rode?

33 = 3 tens and 3 ones
+25 = 2 tens and 5 ones
5 tens and 8 ones or 58

33 children
+25 children
58 children

Add:								
	32	12	42	34	24	14	26	47
	31	32	23	11	43	64	52	52
	63	44	65	45	67	78	78	99

Subtracting Two-Place Numbers

Pat made 28 hats for a party. He gave 16 hats to the girls. How many were left?

To subtract, think of larger numbers as tens and ones. Use your counters to show:

28 = 2 tens and 8 ones — 28 hats
−16 = 1 ten and 6 ones — −16 hats
1 ten and 2 ones or → 12 hats

Pat bought 48 balloons for the party. 12 of them broke. How many balloons did he have left?

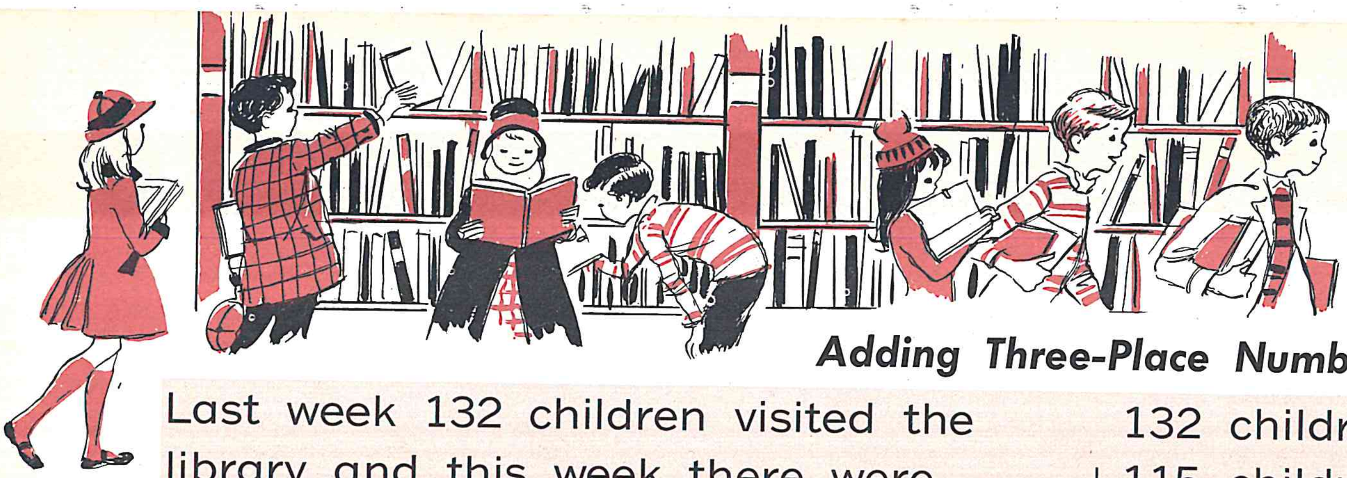
48 = 4 tens and 8 ones — 48 balloons
−12 = 1 ten and 2 ones — −12 balloons
3 tens and 6 ones or 36 balloons

His mother made 84 cookies. The children ate 61 of them. How many cookies were left?

84 = 8 tens and 4 ones — 84 cookies
−61 = 6 tens and 1 one~~s~~ — −61 cookies
2 tens and 3 ones or 23 cookies

66 = 6 tens and 6 ones — 66
−54 = 5 tens and 4 ones — −54
1 tens and 2 ones or → 12

Subtract:							
65	98	35	67	76	78	67	76
53	14	22	15	12	31	32	43
12	84	13	52	64	47	35	33



Adding Three-Place Numbers

Last week 132 children visited the library and this week there were 115 children. How many children visited the library in 2 weeks?

132 children
+115 children
247 children

Remember that 3-place numbers are made of hundreds, tens, and ones:

132 = 1 hundred, 3 tens, and 2 ones
+115 = 1 hundred, 1 ten, and 5 ones
2 hundreds, 4 tens, and 7 ones or 247

There were 115 picture books and 124 story books checked out of the library. How many books were checked out?

115 books
+124 books
239 books

115 = 1 hundred, 1 ten, and 5 ones
+124 = 1 hundred, 2 tens, and 4 ones
2 hundreds, 3 tens, and 9 ones or 239

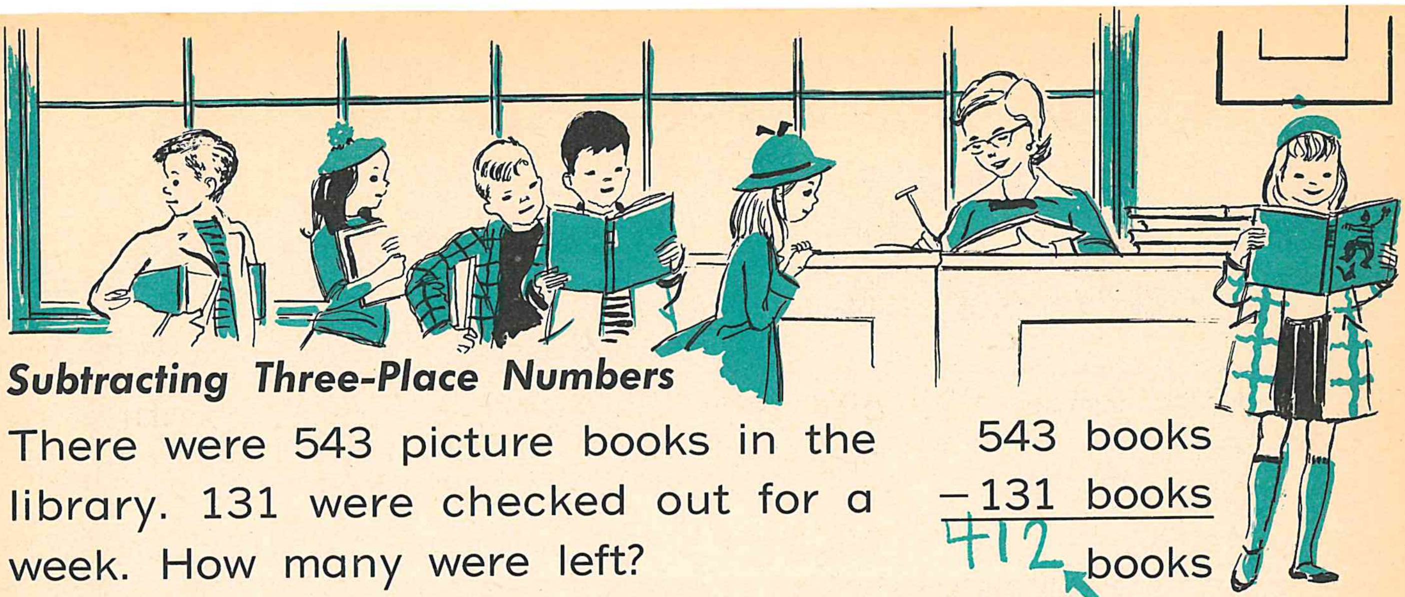
142 = 1 hundred, 4 tens, and 2 ones
+237 = 2 hundreds, 3 tens, and 7 ones
3 hundreds, 7 tens, and 9 ones or 379

142
+237
379

Add:

442	216	247	335	462	343	236	244
532	272	432	640	331	634	351	615
974	488	679	975	793	977	587	859

Have the children add the ones first, then the tens, and then the hundreds.



Subtracting Three-Place Numbers

There were 543 picture books in the library. 131 were checked out for a week. How many were left?

543 books
−131 books
412 books

Remember that 3-place numbers are made of hundreds, tens, and ones:

543 = 5 hundreds, 4 tens, and 3 ones
−131 = 1 hundred, 3 tens, and 1 one
4 hundreds, 1 ten, and 2 ones or 412

There were 637 story books in the library. 216 were checked out for a week. How many were left in the library?

637 books
−216 books
421

637 = 6 hundreds, 3 tens, and 7 ones
−216 = 2 hundreds, 1 ten, and 6 ones
4 hundreds, 2 tens, and 1 ones or 421

498 = 4 hundreds, 9 tens, and 8 ones
−275 = 2 hundreds, 7 tens, and 5 ones
2 hundreds, 2 tens, and 3 ones or 223

498
−275
223

Subtract:

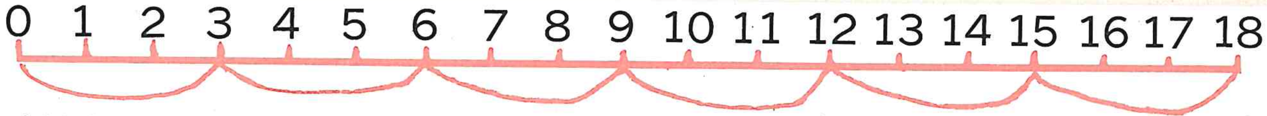
675	886	756	994	679	979	875	649
563	142	440	564	235	352	242	324
112	744	316	430	444	627	633	325

Have the children subtract the ones first, then the tens, and then the hundreds.

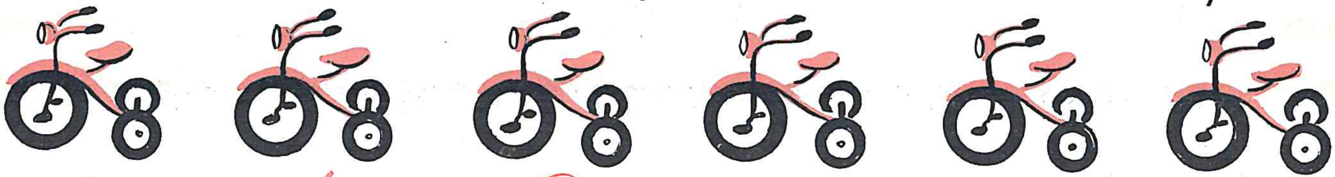
Multiplication and division readiness for grade 3.

Counting Is Fun

Write the numbers as you count by 3's. The number line will help you: 3 6 9 12 15 18

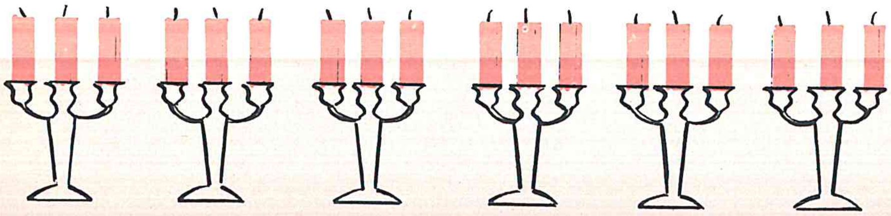

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Write the numbers as you count the wheels by 3's:



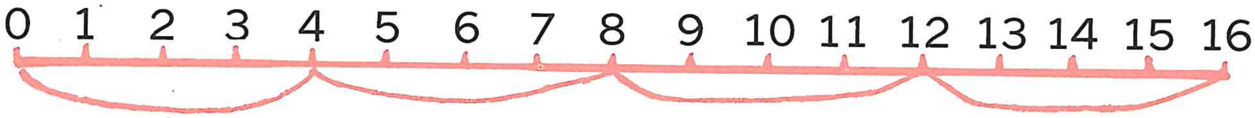
3 6 9 12 15 18

Write the numbers as you count the candles by 3's:

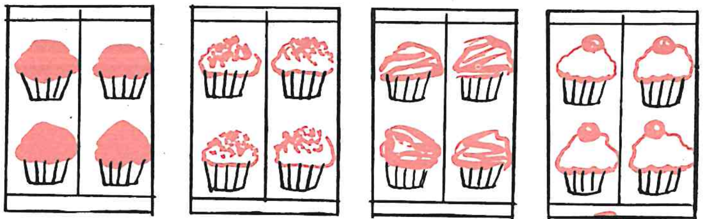


3 6 9 12 15 18

Write the numbers as you count by 4's. Use the number line: 4 8 12 16


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Write the numbers as you count the cakes by 4's:



4 8 12 16

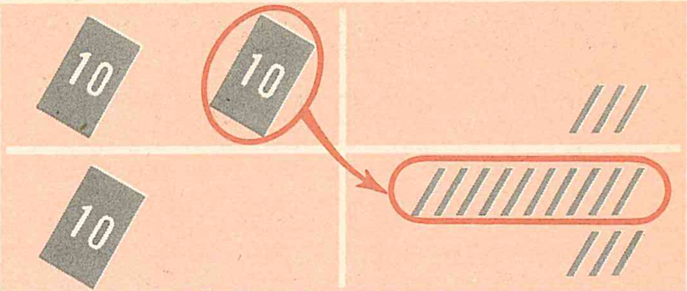
Write by 3's to 18: 3 6 9 12 15 18

Write by 4's to 16: 4 8 12 16

Most pupils are now ready for the concepts of simple exchanging. No problems in exchanging are given in abstract form, but are presented graphically.

Changing Tens to Ones

Sometimes you need more ones in the one's place than your number shows. If your number is 23, you have 2 tens and 3 ones. 20 and 3 are 23. You can change 1 ten to 10 ones. 10 and 13 are 23.



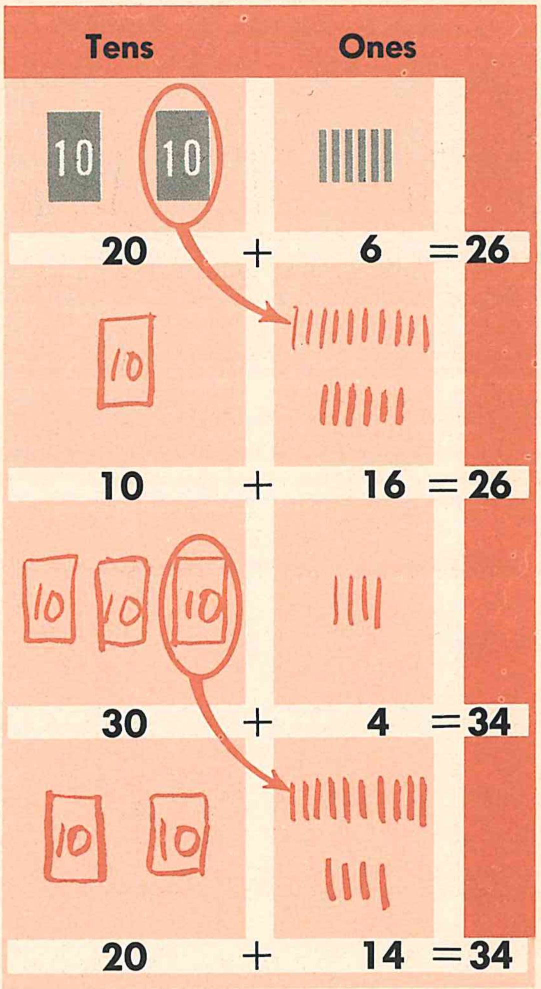
Now you have 1 ten and 13 ones. You still have the same number, but you have more ones to use. Do you see that 1 ten and 13 ones is the same as 2 tens and 3 ones?

The chart shows the number 26 as 2 tens and 6 ones:

Fill in the chart to show the number 26 as 1 ten and 16 ones:

Fill in the chart to show the number 34 as 3 tens and 4 ones:

Fill in the chart to show the number 34 as 2 tens and 14 ones:



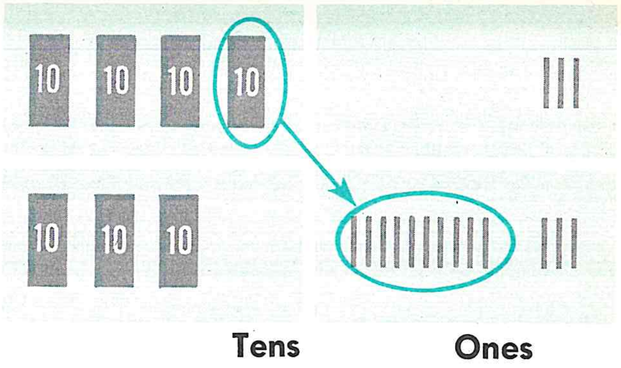
The emphasis here is on writing numbers in different forms, and not on the applications. These lessons should be approached purely as readiness.

Exchanging Tens

43 = 4 tens and 3 ones.

Change 1 ten to 10 ones.

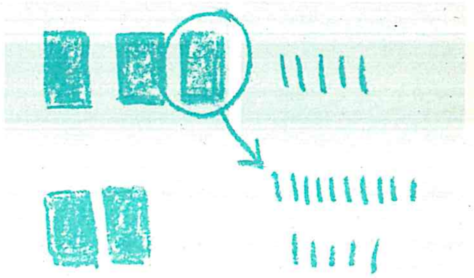
Now you have 3 tens and 13 ones.



Fill in the chart and the spaces:

35 = 3 tens and 5 ones.

Change 1 ten to 10 ones. Now you have 2 tens and 15 ones.



3 tens and 5 ones = 2 tens and 15 ones.

Write the numbers in the spaces:

86 = 8 tens and 6 ones or 7 tens and 16 ones.

74 = 7 tens and 4 ones or 6 tens and 14 ones.

57 = 5 tens and 7 ones or 4 tens and 17 ones.

25 = 2 tens and 5 ones or 1 ten and 15 ones.

63 = 6 tens and 3 ones or 5 tens and 13 ones.

94 = 9 tens and 4 ones or 8 tens and 14 ones.

38 = 3 tens and 8 ones or 2 tens and 18 ones.

59 = 5 tens and 9 ones or 4 tens and 19 ones.

77 = 7 tens and 7 ones or 6 tens and 17 ones.

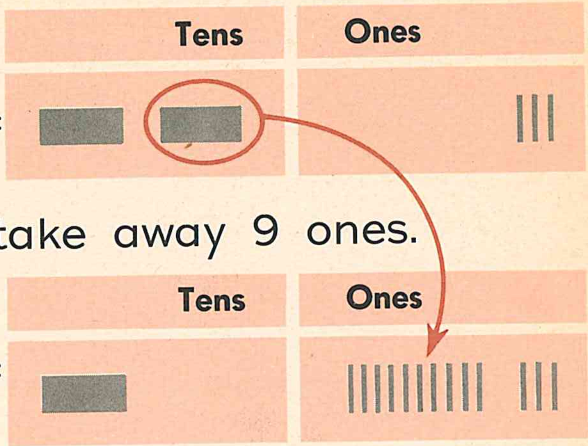
46 = 4 tens and 6 ones or 3 tens and 16 ones.

82 = 8 tens and 2 ones or 7 tens and 12 ones.

Instead of presenting borrowing and carrying as two separate procedures, the unifying ideas of exchanging are developed in this and the following lessons to help link addition and subtraction as related operations.

More Exchanging

Subtract: 23
−9
14



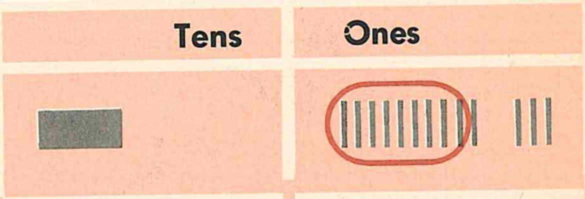
23 =

There are not enough ones to take away 9 ones.

Do you see that you can make 1 ten into 10 ones? 23 =

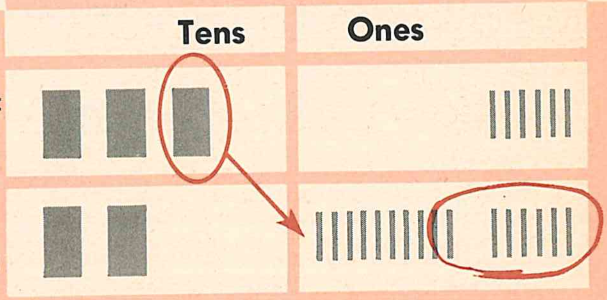
You now have 13 ones.

13 ones take away 9 ones is 4 ones.



Take away 9. You now have 1 ten and 4 ones or 14.

Subtract: 36
−8
28



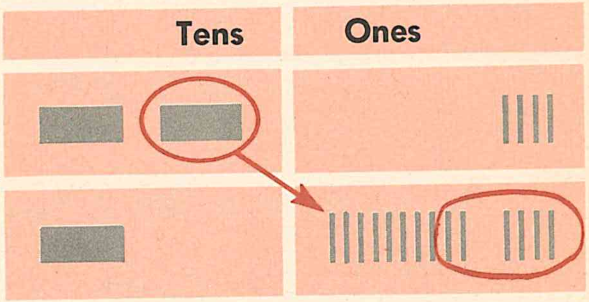
36 =

You cannot take 8 ones from 6 ones.

36 =

Draw a circle around the 8 ones you are taking away. You now have 2 tens, 8 ones, or 28.

Subtract: 24
−7
17



24 =

You cannot take 7 ones from 4 ones.

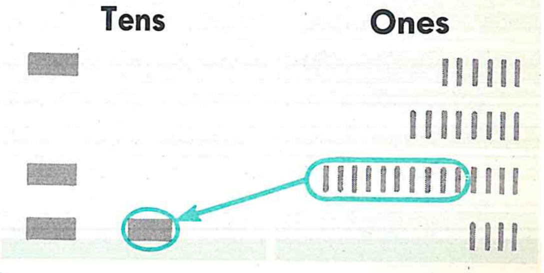
24 =

Draw a circle around the 7 ones you are taking away. You now have 1 tens, 7 ones, or 17.

Tens and Ones

Sometimes you get an answer with more than 10 ones. You can change 10 ones to 1 ten.

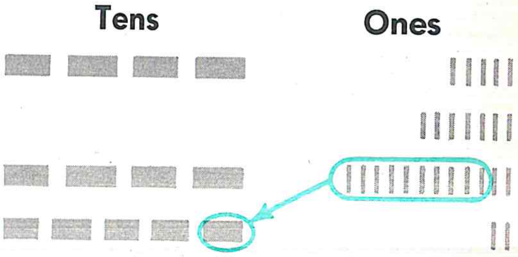
Add: 16 = 1 ten and 6 ones
+8 = 8 ones
1 ten and 14 ones



Do you see that 10 ones is the same as 1 ten?

You now have 2 tens and 4 ones.

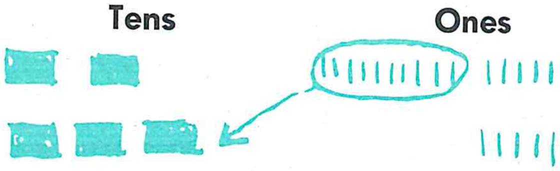
Add: 45 = 4 tens and 5 ones
+7 = 7 ones
4 tens and 12 ones



You now have 5 tens and 2 ones or 52.

Fill in the chart and the spaces:

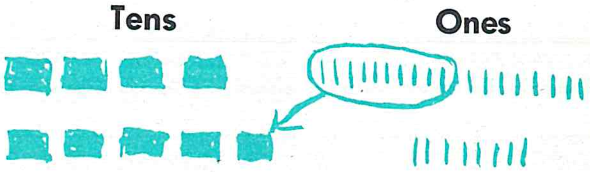
2 tens and 15 ones =
Change 10 ones to 1 ten.



Now you have 3 tens and 5 ones or 35.

2 tens and 15 ones = 3 tens and 5 ones or 35.

4 tens and 18 ones =
Change 10 ones to 1 ten.



Now you have 5 tens and 8 ones or 58.

4 tens and 18 ones = 5 tens and 8 ones or 58.

Exchanging Tens

Write the numbers in the spaces:

5 tens and 17 ones = 6 tens and 7 ones or 67.

8 tens and 12 ones = 9 tens and 2 ones or 92.

7 tens and 13 ones = 8 tens and 3 ones or 83.

6 tens and 19 ones = 7 tens and 9 ones or 79.

3 tens and 11 ones = 4 tens and 1 one~~s~~ or 41.

2 tens and 16 ones = 3 tens and 6 ones or 36.

1 ten and 15 ones = 2 tens and 5 ones or 25.

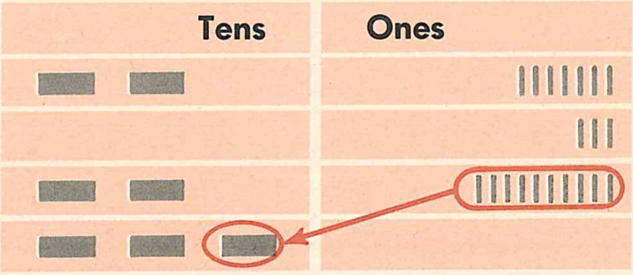
4 tens and 14 ones = 5 tens and 4 ones or 54.

6 tens and 10 ones = 7 tens and 0 ones or 70.

8 tens and 19 ones = 9 tens and 9 ones or 99.

Add:

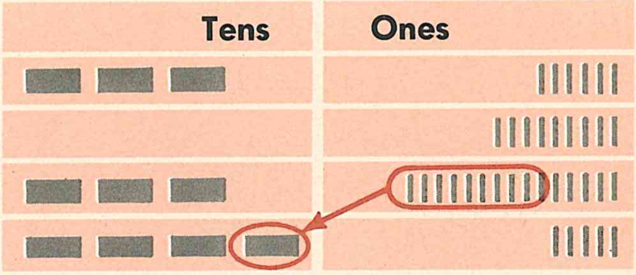
27 = 2 tens and 7 ones
+3 = 3 ones
2 tens and 10 ones



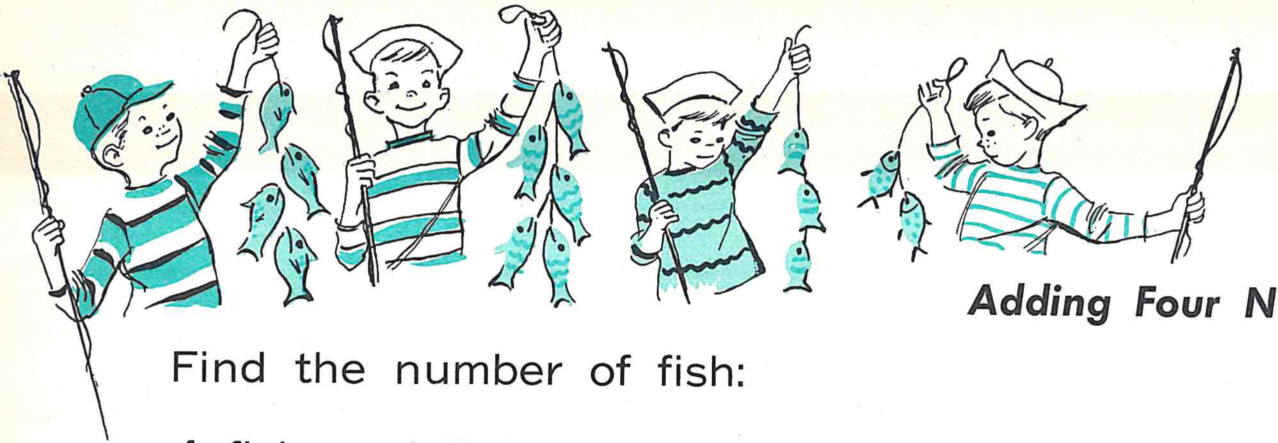
You now have 3 tens and 0 ones or 30.

Add:

36 = 3 tens and 6 ones
+9 = 9 ones
3 tens and 15 ones



You now have 4 tens and 5 ones or 45.

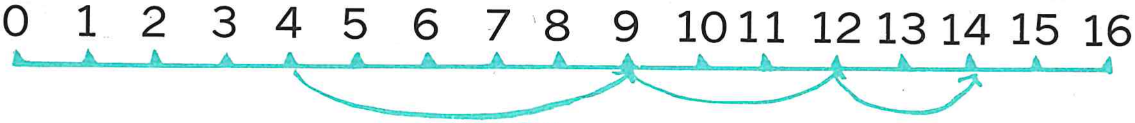


Adding Four Numbers

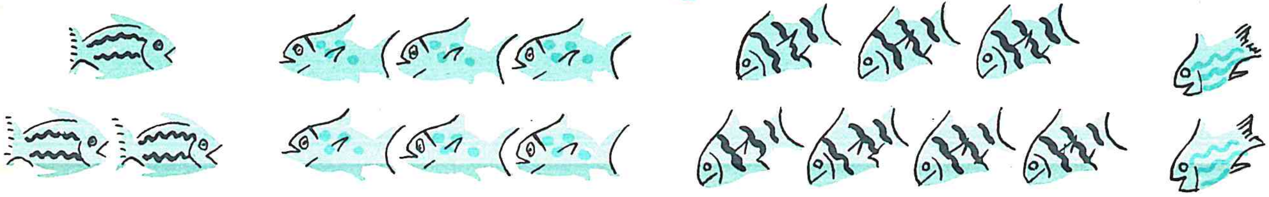
Find the number of fish:

4 fish and 5 fish and 3 fish and 2 fish are 14 fish. 4 + 5 + 3 + 2 = 14

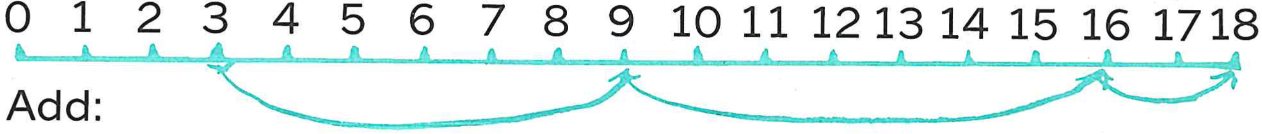
$$\begin{array}{r}4\\5\\3\\+2\\\hline 14\end{array}$$


0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

3 + 6 + 7 + 2 = 18



$$\begin{array}{r}3\\6\\7\\+2\\\hline 18\end{array}$$


0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

Add:

3	2	5	6	4	3	4	1
1	4	4	1	2	4	1	4
1	5	6	6	9	2	7	6
4	3	2	2	1	3	6	4
9	14	17	15	16	12	18	15
5	4	3	6	9	5	6	7
4	5	5	3	5	8	7	6
6	3	1	5	1	2	4	3
3	2	8	2	3	1	1	2
18	14	17	16	18	16	18	18

1 + 7 + 3 + 4 = 15

4 + 3 + 4 + 7 = 18

The Things We Know

Work the problems. Watch the signs!

9	8	14	8	18	15	7	9	17
+9	−7	−9	+9	−9	−6	+4	+5	−8
18	1	5	17	9	9	11	14	9

Add: 5 + 3 = 8

15 + 3 = 18

6 + 2 = 8

22 + 3 = 25

25 + 3 = 28

45 + 4 = 49

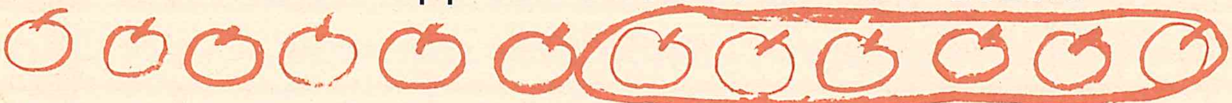
42	54	63	35	146	812	574	421
53	43	25	24	223	127	214	256
95	97	88	59	369	939	788	677

Subtract:

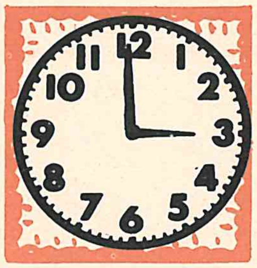
79	86	58	51	393	465	987	794
34	55	34	47	142	242	565	363
45	31	24	4	251	223	422	431

Two 7's are 14. Two 8's are 16. Two 9's are 18.

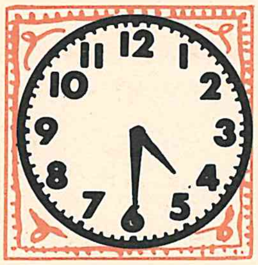
Draw one dozen apples. Circle one half dozen:



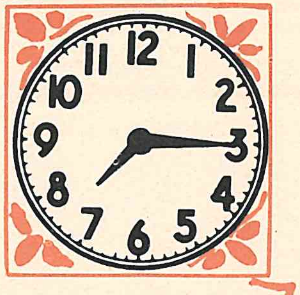
Write the time each clock tells:



3 o'clock



Half past 4



Quarter past 7

3 + 4 = 7

4 + 5 = 9

34 + 2 = 36

25 + 3 = 28

23 + 6 = 29

42 + 5 = 47

The Things You Have Learned

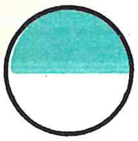
Write the numbers that tell how many:

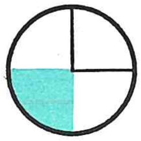
143 means 1 hundred, 4 tens, and 3 ones.

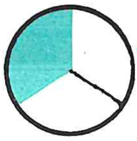
305 means 3 hundreds, 0 tens, and 5 ones.

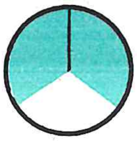
960 means 9 hundreds, 6 tens, and 0 ones.

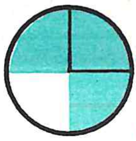
Write the fraction that tells what part of each circle is colored:


$\frac{1}{2}$

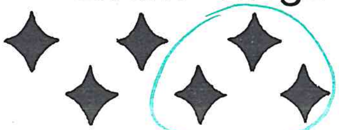

$\frac{1}{4}$

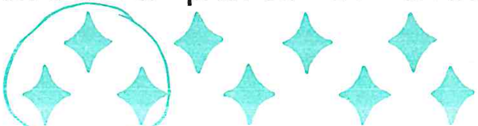

$\frac{1}{3}$

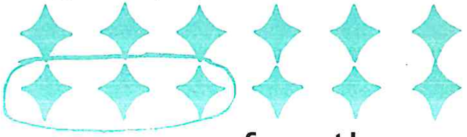

$\frac{2}{3}$


$\frac{3}{4}$

Draw rings around parts of these groups:


one half


one third


one fourth

Circle the right answers:

1 gallon = 2 3 [✓ 4] quarts

1 foot = 10 11 [✓ 12] inches

1 yard = 12 24 [✓ 36] inches

1 quart = 1 [✓ 2] 3 pints

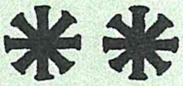
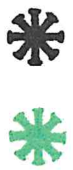
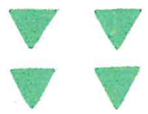
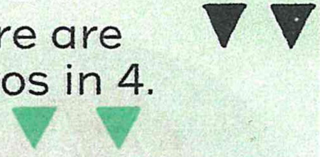
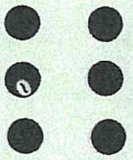
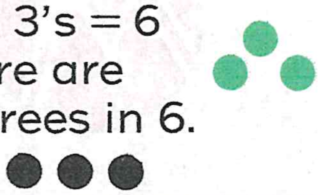
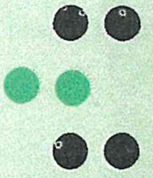
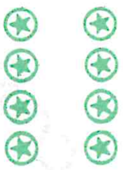
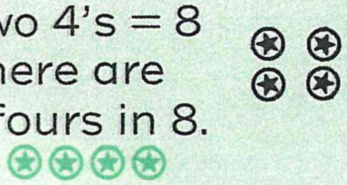
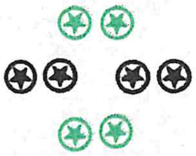
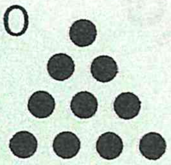
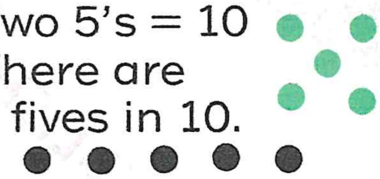
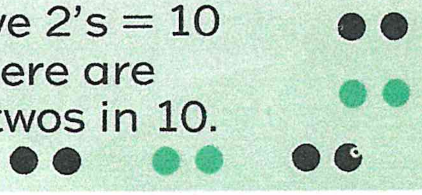
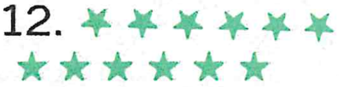
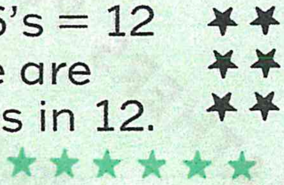
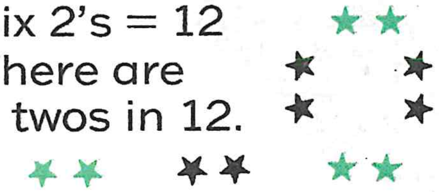
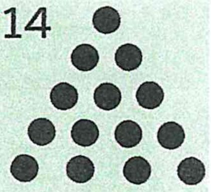
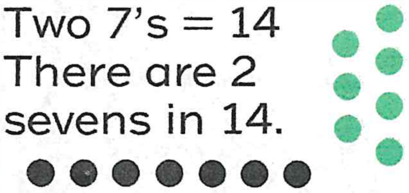
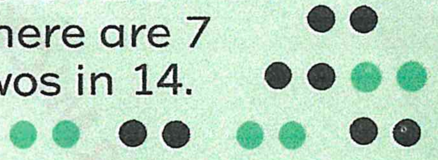
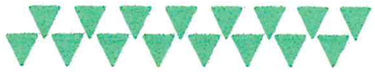
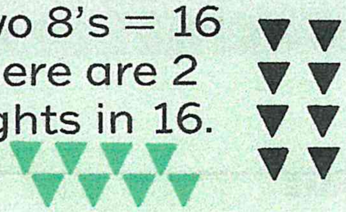
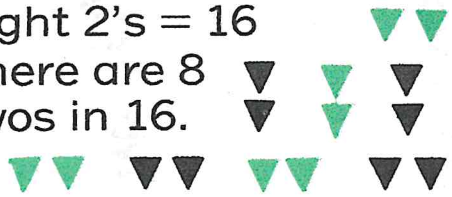
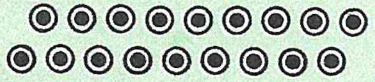
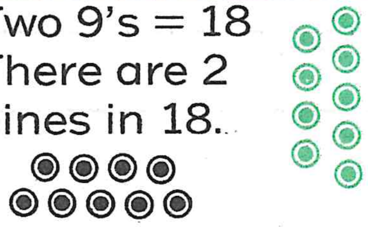
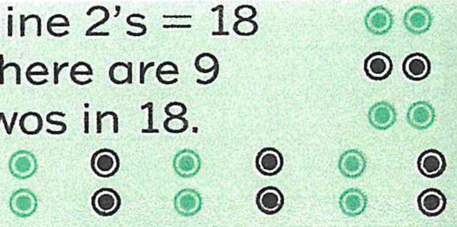
1 pint = [✓ 2] 6 8 cups

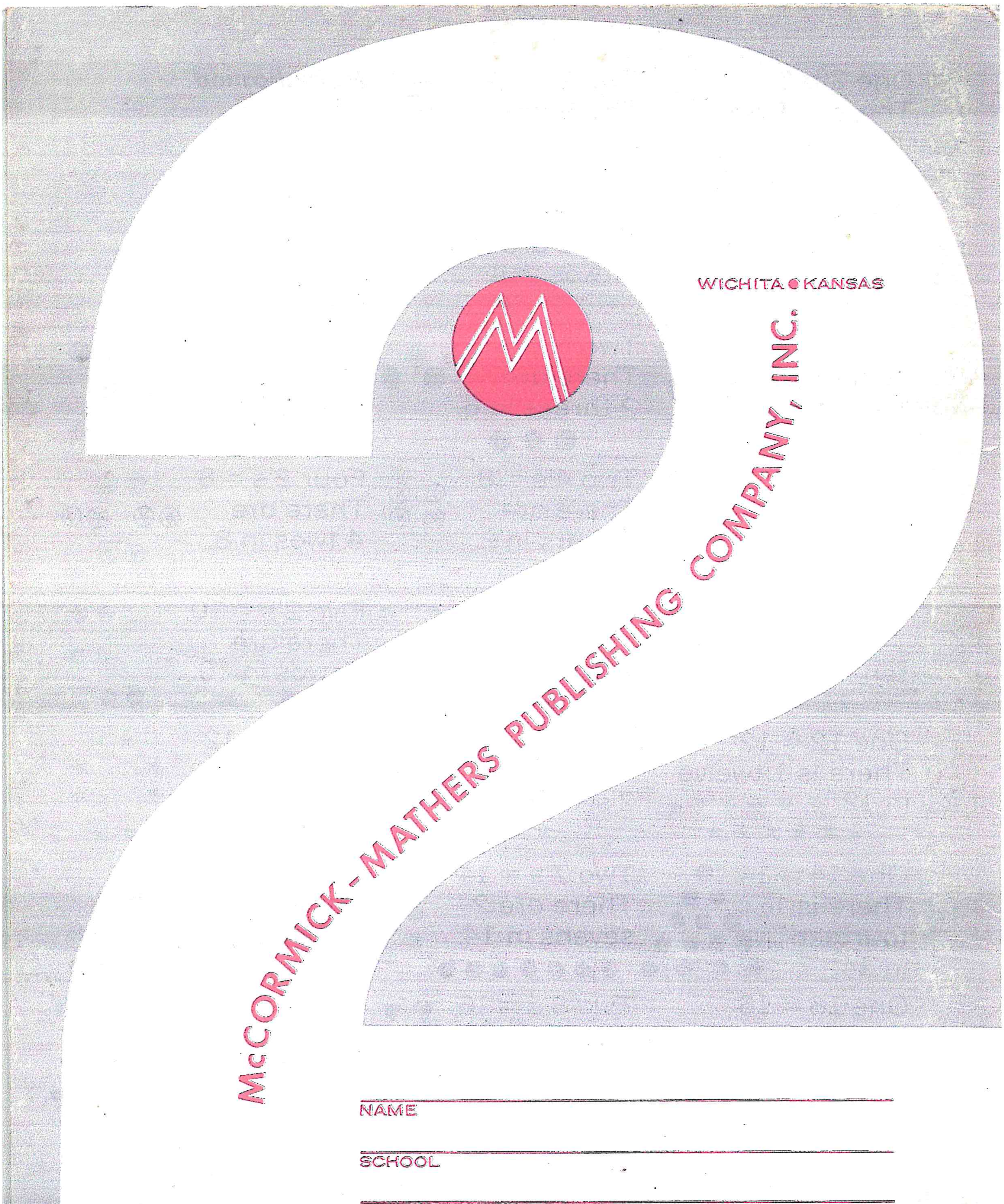
1 yard = [✓ 3] 4 5 feet

Work the problems. Watch the signs!

7	12	13	8	9	11	4	6	14
+5	−7	−5	+6	+7	−3	+7	+6	−7
12	5	8	14	16	8	11	12	7
6	11	3	13	9	16	12	17	6
+7	−9	+8	−8	+9	−7	−6	−9	+9
13	2	11	5	18	9	6	8	15
18	8	4	15	16	9	15	7	8
−9	+8	+9	−7	−8	+5	−9	+8	+9
9	16	13	8	8	14	6	15	17

Multiplication and Division Readiness Chart

2	One 2 = 2 There is 1 two in 2. 	Two 1's = 2 There are 2 ones in 2. 	
4	One 4 = 4 There is 1 four in 4. 	Two 2's = 4 There are 2 twos in 4. 	
6	One 6 = 6 There is 1 six in 6. 	Two 3's = 6 There are 2 threes in 6. 	Three 2's = 6 There are 3 twos in 6. 
8	One 8 = 8 There is 1 eight in 8. 	Two 4's = 8 There are 2 fours in 8. 	Four 2's = 8 There are 4 twos in 8. 
10	One 10 = 10 There is 1 ten in 10. 	Two 5's = 10 There are 2 fives in 10. 	Five 2's = 10 There are 5 twos in 10. 
12	One 12 = 12 There is 1 twelve in 12. 	Two 6's = 12 There are 2 sixes in 12. 	Six 2's = 12 There are 6 twos in 12. 
14	One 14 = 14 There is 1 fourteen in 14. 	Two 7's = 14 There are 2 sevens in 14. 	Seven 2's = 14 There are 7 twos in 14. 
16	One 16 = 16 There is 1 sixteen in 16. 	Two 8's = 16 There are 2 eights in 16. 	Eight 2's = 16 There are 8 twos in 16. 
18	One 18 = 18 There is 1 eighteen in 18. 	Two 9's = 18 There are 2 nines in 18. 	Nine 2's = 18 There are 9 twos in 18. 



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